Chapter 1

INTRODUCTION TO RESIDENT INSTRUCTION

Table of Contents

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Introduction

Overview

Volume Five of the Standard Operating Procedures (SOP) for Coast Guard Training Systems covers the systematic design of instructional materials for resident instruction.

The Coast Guard uses a five-phase Instructional Systems Design (ISD) model to create desired training results. The mnemonic ADDIE is used for remembering the phases: **a**nalysis, **d**esign, **d**evelopment, **i**mplementation, and **e**valuation. This SOP expands on that concept adding guidance for project management of instructional design projects (Chapter 2); assistance on how to manage changes to courses (Chapter 8); and guidance on how components of the training system fit together (Chapter 9).

The material in this SOP expands on the information that graduates of the Coast Guard's Course Developer Course (CDC) are taught. Many of the performance skills and knowledge components are the same; however, more specific details incorporating the ISD ADDIE methodology have been included. In addition to the job aids, worksheets, and templates introduced in CDC, the SOP includes completed examples and tip sheets covering ISD topics in more detail. You can use these additional resources to continue building your ISD skills and competencies.

Introduction, Continued

Purpose

The purpose of this SOP is to provide a standard methodology for those responsible for producing training-related materials for the Coast Guard. The intention of this SOP is to help you determine the additional information necessary for designing and developing a valid and reliable instructional training program with the highest fidelity possible. Valid and reliable training is the training system's goal to prepare the workforce for Coast Guard operations.

Valid materials are defined as activities that are high level simulations of actual tasks they perform on the job.

Reliable training is defined as training materials that are so descript, that student and instructor alike are capable of determining whether student performances match actual Coast Guard standards for performance on the job.

This SOP is a tool to assist in the development of consistent Coast Guard training materials. The Coast Guard ISD model, as presented here, is based on theory, research, and a considerable amount of practical experience. It presents the breakdown of instructional design tasks much in the same way a cookbook breaks down recipes – you do *this*, then you do *that*.

Target Audience

The ISD process outlined in this SOP is prescriptive enough to enable the junior active duty course developer to complete a project with the oversight of their active duty supervisor and/or a civilian Instructional Systems Designer. Additionally, the SOP includes guidance for the supervisor and designated project manager on how to plan and track the project toward successful completion. Each phase will explain in more detail the appropriate target audience for that particular phase.

Active duty course developers must be graduates of the Coast Guard's Course Developer Course (CDC) and have or be pursuing the Coast Guard "PERJI" Competency Code. (See *SOP, Vol. 13 f*or additional guidance on active duty course developer professional development.)

Introduction, Continued

CG ADDIE Model

The ADDIE approach to creating training materials has been applied and used by both military and private sector for many years. One of the limitations in how the model is applied is that ADDIE often has a waterfall effect, meaning that the output of each phase leads into the next phase as an input. Although the layout of the chapters of this SOP follow the ADDIE mnemonic; they are broken up by chapters throughout this SOP, each phase of the ADDIE process is explained, key outputs identified, and the processes to achieve those outputs are outlined. This SOP recognizes that ISD teams that work analysis, design, and development issues simultaneously, with the gathering and disseminating of information to each phase throughout, produce the most effective and efficient training. Additionally, just as evaluation is iterative and throughout each phase, we've introduced the SOP with Project Management which embodies the Coast Guard ADDIE model and helps ensure timely and successful management of your project from start to finish. The Coast Guard ADDIE model, shown below, illustrates the process as a whole as will be presented throughout this SOP.

Introduction, Continued

ADDIE Process

Analysis — This phase involves identifying the end goal of training—the performance we're trying to affect. We use analysis tools to break jobs down into the tasks and task steps that make up Coast Guard performance. Who performs? Under what conditions are the tasks performed and to what tolerances? Which tasks should we train, and which tasks do our students already know how to do?

Design — This phase involves creating a blueprint for instruction. We ask questions such as: What kind of learners will use this training program, and how should we design instruction so it is best tailored to meet their needs? What do we need to know about the tasks to design effective instruction? Which instructional methods (role play, simulation, case study, etc.) will work best for this set of learners and for this kind of material? What strategies can we employ to help learning occur and to ensure students transfer what they learn to on-the-job performance? What kinds of learning assessments or tests should we create to ensure learning took place?

Development — This phase entails building all aspects of instruction necessary to execute the learning strategy and any supporting documentation. Development includes instructor activity guides and materials appropriate for the mode of delivery. In every instance, materials are tested and evaluated to validate that the activities and materials are ready to use by the learner.

Implementation — This phase refers to the actual delivery of instruction in a way that ensures student mastery of the learning objectives and transfer of necessary skills to the job setting. This starts with the pilot of the very first course and continues until the course is discontinued.

Evaluation — This phase measures the effectiveness and efficiency of the instruction. Evaluation asks questions such as: Did the training do what it was intended to do? Are instructors delivering the training as designed? Does the instructional strategy work for the instructors as well as the learners?

Introduction, Continued

Audit Trail

The value of a workflow model, like ADDIE, is that it provides a systematic means of determining the correct level of performance support and a formal process for documenting the decision along the way. The job aids and worksheets in this SOP act as documentation of work done, and decisions made to form an ISD audit trail. Likewise, the project management framework is provided for coordinating a team's activities and the contributions of each team member. The reason for creating an audit trail is so in the future, course developers can go back, review, and evaluate decisions that were made, and if necessary make informed corrections.

Audit trails are also useful in evaluating how the ISD process worked for given projects and what key learning points can be extracted. They can also be useful in addressing how ISD projects can be managed in the future to enable greater success, as well as what actionable items still exist for a course.

How Does the Resident Instruction SOP Relate to the Other SOPs?

The Coast Guard Training System's SOPs define terminology; provide procedural guidance for internal, inter-service, and contractor support. The purpose of each of the SOPs is to provide default methodologies for much of the work within the Training System. The Resident Instruction SOP containing the "how to's" that any course developer shall follow to ensure all Coast Guard members are using the same proven processes to obtain consistent and quality outputs.

The Resident Instruction SOP has a critical relationship to the other Coast Guard Training System SOPs because it defines the bulk of the process from which our Coast Guard training programs are built. When an analysis (*SOP, Volume 2*) has determined that training is the appropriate or recommended solution, the Resident Instruction SOP takes over and designs the framework of the course on which the curriculum outline (*SOP, Volume 6*) addresses for resourcing and instructor staffing. The secondary benefit of having a specific Coast Guard ISD process, is that becomes the default methodology to hired contractors responsible for producing training materials and programs for the Coast Guard, so no matter who develops a Coast Guard training program it will look and feel the same.

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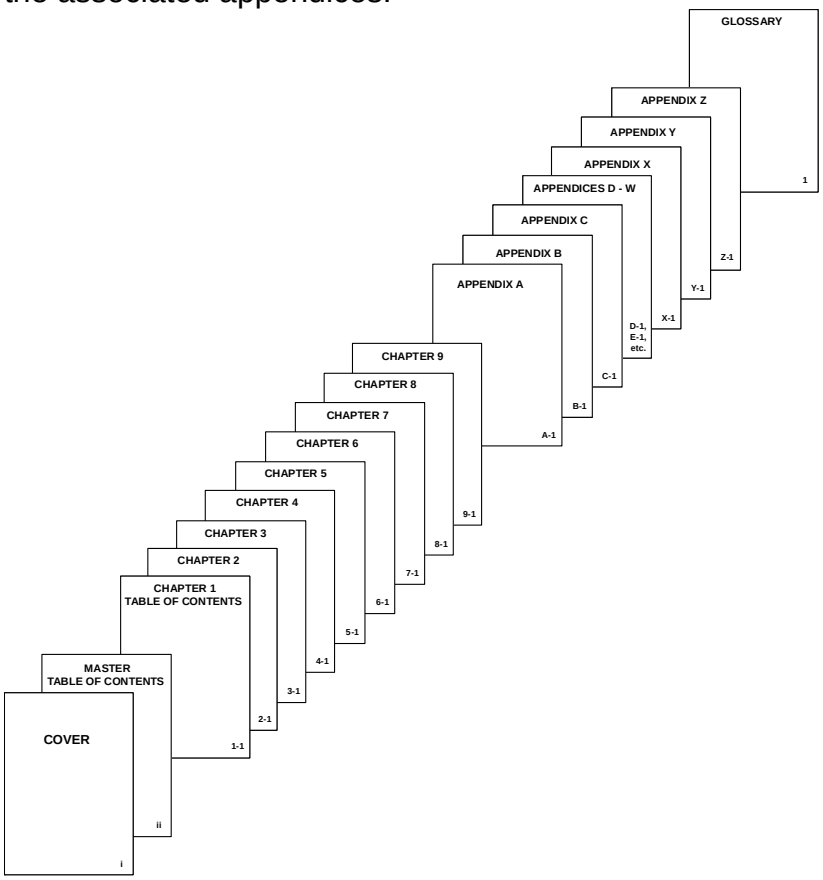
Understanding This SOP

Document Structure

This SOP contains nine chapters which provide guidance on all aspects of resident course development for the USCG. Each chapter contains a Table of Contents on the first page, which includes all the contents within that chapter with the exception of the associated appendices.



Chapter 1: Introduction

Chapter 2: Project Management

Chapter 3: Analysis (Task Analysis)

Chapter 4: Design Phase

Chapter 5: Development Phase

Chapter 6: Implementation Phase (Pilot)

Chapter 7: Evaluation

Chapter 8: Course Maintenance

Chapter 9: Training Management

Continued on the next page

Understanding This SOP, Continued

Document Structure, Continued

Chapters 3 through 7 are aimed at course developers and instructional designers and specify required inputs and outputs for each phase of the ADDIE model. Generally speaking, the structure (which appear as block headers on the page) within each of these chapters is as follows:

- Overview
- Audience
- Purpose
- Inputs
- Outputs
- Process Overview
- Steps
- Additional Resources

Chapters 2, 7, 8, and 9 are aimed at individuals who are managing the ADDIE process. Thus, these chapters have a slightly different presentation.

Appendix Structure

Chapters 2 through 7 contain appendices that include –in this specific order– job aids, templates (or worksheets), worked examples, and tip sheets. Chapters 8 and 9 each only have one appendix that provide worksheet and job aid/checklist to support chapter specific processes. While most templates and worksheets have corresponding job aids, there are some that do not since the template or worksheet itself serves as a job aid.

Worksheets and templates in Word have been provided for download on the SOP webpage at:
http://cgweb.tcpet.uscg.mil/T_Div/CDT/default.asp

Understanding This SOP, Continued

Navigating the SOP

Due to the volume of this SOP, the chapters and appendices have been created as separate files. The first page of each chapter contains a separate Table of Contents for that chapter. Appendices contain a table on the first page listing the number and title of the contents.

Additionally, you can use the following options to navigate to other areas within the SOP:

- Scroll through the page thumbnails of the document using the scroll bar on the left panel in Adobe Acrobat.
- Use the Master Table of Contents at the front of the SOP

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Chapter 2

PROJECT MANAGEMENT

Table of Contents

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2.1 – Chapter Introduction

Overview

Synopsis

Strong project management goes beyond the creation of a schedule with deadlines. Strong project managers consider the:

- Scope – What deliverables will this project produce?
- Schedule – When will these deliverables be complete?
- Resources – What do we need (people, funding, equipment) to produce this scope by this schedule?

Strong project management produces the desired *scope* (e.g., quality documents, course materials, products) using desired *resources* (e.g., people, equipment, funding) within a desired *schedule* (e.g., timeline, deadlines, milestones).

Project Management for Course Development

The majority of this SOP focuses on the steps for successful course development following the ADDIE process (A - Analysis, D - Design, D - Development, I - Implementation, and E - Evaluation). Project management occurs throughout the entire ADDIE process for Coast Guard course development, as depicted in the image below.

Strong project management ensures the ADDIE process is implemented efficiently. When you apply project management techniques, your project sponsors, students, stakeholders, and team members are more likely to be satisfied with the outcome.

Overview, Continued

Audience

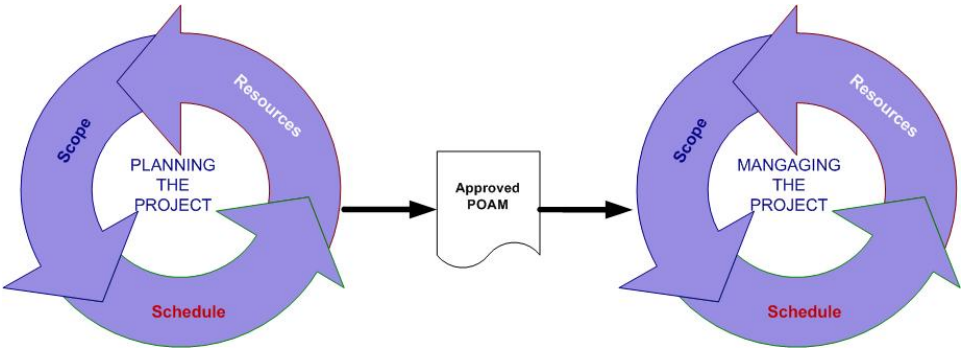
The audience for this chapter includes:

Primary Audience – Coast Guard personnel responsible for the *internal* project management of resident training development; Coast Guard Performance Systems Branch managers, Instructional Systems Specialist Supervisors, and/or Project Leads.

Secondary Audience – All personnel involved in course development efforts, and support of a management role.

Purpose

The purpose of this chapter is to introduce a simple two-part model for successful project management. The model includes: (1) planning the project and (2) managing the project.



After completing this chapter you should be able to:

1. Create an approved Plan of Action and Milestones (POAM) per chapter success criteria (*planning the project*).

2. Implement your approved POAM per chapter success criteria (*managing the project)*.

Overview, Continued

Using this Chapter

Your Situation….	Recommendation
Project seems small or minor; wondering whether formal Project Management is necessary	Does your project…. • Exceed 80 hours to complete project? __YES __NO • Require >1 dedicated resource? __YES __NO • Have high priority or strategic impact? __YES __NO • Have an urgent deadline? __YES __NO If you answered … ✓ **Yes** to two or more statements above, a formal project management process is required. ✓ **Yes** to only one statement above, a formal project management process is strongly encouraged. ✓ **No** to all statements above, a formal project management process may not be necessary. Talk with your sponsor(s) and management to confirm.
Our project is just getting started.	Complete this entire chapter.
We're experiencing trouble mid-way into our project.	Explore any option below as appropriate: ✓ **Option 1**: Go to *2.3 - Managing the Project*, and review the topic Change Management. ✓ **Option 2**: Scan the sections listed in the Table of Contents in this chapter and review topics that might apply to your situation. ✓ **Option 3**: Compare your current POAM with the POAM elements presented in this chapter. Identify opportunities to strengthen your current project plan.
We're mid-way through the project and everything is going very well (OR) I'm already an expert in project management	Explore any option below as appropriate: ✓ **Option 1**: Go to the Table of Contents in this chapter and select the topics of interest. ✓ **Option 2**: Go to the Appendix and review the Job Aids and POAM example to confirm all elements have been defined for your project and are now being tracked.
I'm almost done with my project	Go to *2.3 - Managing the Project*, and review the topic Project Wrap Up.

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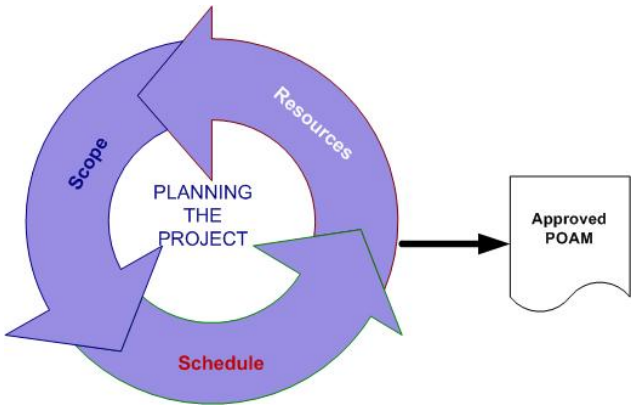
2.2 – Planning the Project

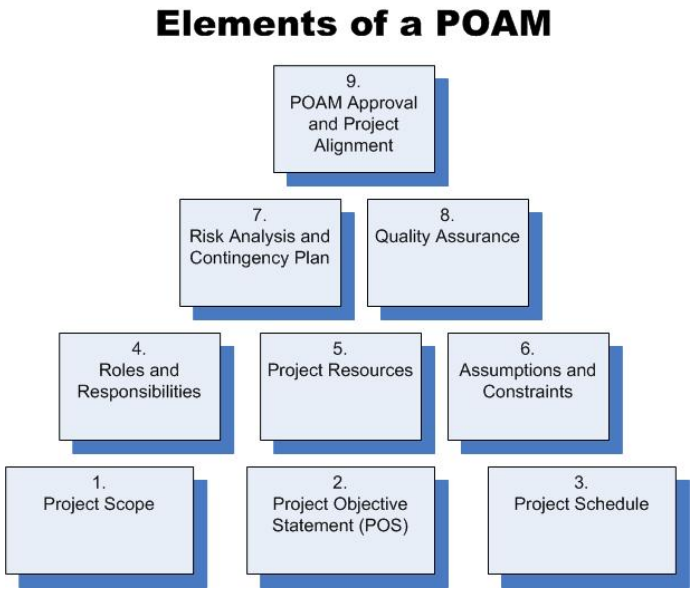
Introduction

Overview

The Project Management model introduced in this chapter consists of two parts: (1) planning the project and (2) managing the project. In this section we will explore in more detail the first part of the model: planning the project.



The output of project planning is an approved *Plan of Action and Milestones* (POAM) document. The sub sections that follow offer more detail on each of the nine elements necessary to achieve that final output – an approved POAM.



Introduction, Continued

Purpose

The purpose of project planning is to plan the production of desired deliverables given a certain amount of resources (e.g. people, funding) and a desired schedule (e.g. deadlines).

During project planning, the Project Manager devises a method to achieve a successful project, documents this method in a POAM, and then obtains team consensus and sign-off for this plan.

Inputs

Project planning inputs are referenced in the POAM document and include:

- Project Scope: *What are the project deliverables?*
- Project Objective Statement (POS): *What is our goal?*
- Project Schedule: *When must the deliverables be provided and the project completed?*
- Roles and Responsibilities: *Who is doing what?*
- Project Resources: *Who is on the team? What roles have not yet been filled? What equipment is required? What funding is needed?*
- Assumptions and Constraints: *What unspoken assumptions are we making about this project? What constraints are we facing with this project?*
- Risk Analysis and Contingency Plan: *What could go wrong, and then what would we do?*
- Quality Assurance: *How will we ensure the highest quality in our deliverables/products?*
- POAM Approval and Project Alignment: *Are we all in alignment with the project's priorities, timeline, and deliverables?*

Outputs

The project planning output includes an approved POAM with:

- Sections on every input listed above
- Signatures from all key stakeholders

Example

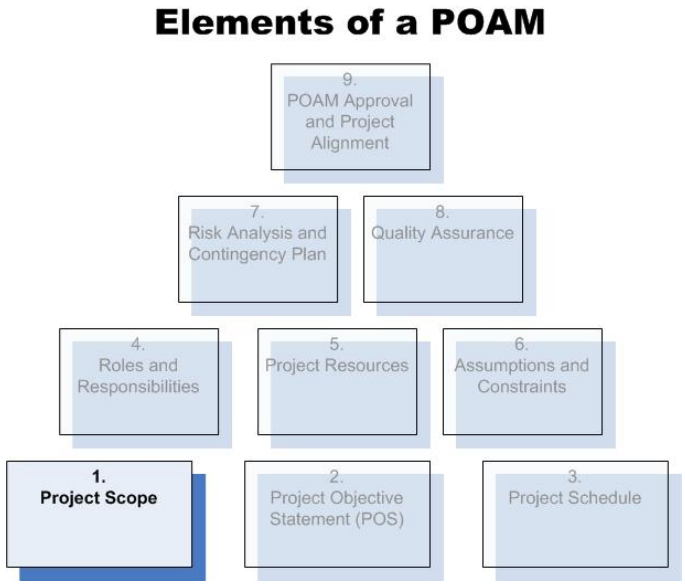
If you have never created a POAM before, review the explanations and examples of each of the eight sections of a POAM, which are provided in this section.

*Appendix C (*EX-C.1) provides a complete example of a POAM.

Defining the Project Scope

Overview

Each of the nine elements necessary to achieve an approved POAM, are listed in the image below. This sub-section introduces the first element of your POAM document – *project scope*.



Purpose

The purpose of the scope is to define the deliverables of the project. Examples of scope include: a Job Aid Booklet, an Instructor Guide, an eLearning course, Performance Tests, etc.

Some common mistakes when defining the project scope include:

- Over-promising too many deliverables that can't be achieved with current resources or by current deadlines.
- Under-estimating the amount of time needed to produce a deliverable; assuming nothing will go wrong.
- Not including sufficient details, leaving the deliverable subject to interpretation.
- Allowing additional deliverables to be added mid-project (known as "scope creep") without defining the impact on the project schedule and resources.
- Experiencing changes in scope, schedule, or resources and not communicating the trade-offs and impact to your sponsor (for example, losing a designer and then not adjusting the schedule deadline to reflect this loss).

Defining the Project Scope, Continued

Example

Here is one example of how the scope might be featured in a POAM document.

See *Appendix C* for another example found within a complete POAM (EX-C.1).

Project Scope: XYZ Widgets Course Module		
Item	Quality Metrics	Deadline
Instructor Guide	- School template - Aligned to student guide - Quiz answers - Instructor script - Objectives	1/25
Student Guide	- Exercise Instructions - Aligned to instructor guide - Objectives	1/25
Lab Lesson on Basic Widgets	- Performance-based tests - Passing Grades - Job Aid with graphics - High scores on perception survey (students, Instructors)	2/23

What IS included: (in this project)	**What IS NOT included: (in this project)**
Widget Lab *Instructor Guide* *Student Guide*	*eLearning course on widget prerequisites*

Defining the Project Scope, Continued

Define the Deliverables

When defining project scope, you will list deliverables as well as the following information for each deliverable:

- Primary audience
- Success/completion metrics (e.g., quality)
- Date constraints (if relevant)

Also, include a table which outlines both what *is* and what *is not* included in your project. Communicating this information prevents a potential misunderstanding about what can be accomplished within a given timeframe.

Appendix A, Job Aid-A.1, provides additional guidance on defining the Project Scope. The following list provides a brief summary of people most likely involved in defining the scope of your project:

- Project Sponsor(s) is the person (or people) funding, championing, and/or evaluating your project's success. Examples: Training Officer, Headquarters, Division Training Manager, Captain, etc.
- Key Stakeholder(s) is the person (or people) who have a stake in your project. Examples: The School, Course Chief, etc.
- Target Audience is the group of people who will be using the project deliverables. Although you will probably not interview anyone from the target audience when defining scope, confirm with your sponsors and stakeholders who they identify as the target (primary) audience of your project.

***Note**: When you meet with your key sponsors and stakeholders to define scope, take the opportunity to discuss the fluid nature of project management.*

Let them know that if project scope changes after the project launches, it could potentially impact the schedule and/or resources.

Set the expectation up front that you are flexible and can accommodate project scope changes during the project as long as the sponsors understand the implications that their changes may produce.

Defining the Project Scope, Continued

Changes in Project Scope

After POAM sign-off and project launch, you might be faced with a request to add and define new deliverables, thus expanding your project scope (which is also called *scope creep* or *scope change*). This usually happens for at least one of the following reasons:

Reason 1: Sponsor Request

In the middle of a project, a sponsor might request new content, deliverables, etc. If this happens:

a) The Project Manager should consult the entire team to determine how the requested scope change might impact the schedule and/or resources as defined in the POAM.

b) After consulting the team, the Project Manager should inform the sponsor(s) how the proposed scope change could impact the schedule and/or resources, and offer alternate choices (for example, adding another team member, or pushing out the schedule several months).

Reason 2: Discovery

Another reason for scope changes mid-project is that the team discovers the need to alter deliverables during one of the course development phases. For example:

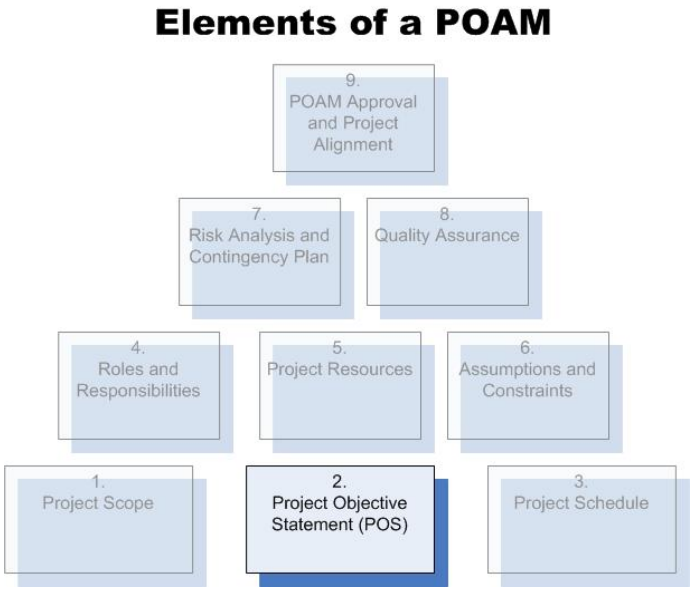
- **Analysis Phase**: Team discovers additional deliverables are needed to meet performance criteria.
- **Design Phase**: Team discovers that content redundancy allows deletion of some deliverables.
- **Development Phase**: Team later determines the need for eLearning, which requires a new deliverable.
- **Implementation Phase**: Team discovers during a Test Run that a learning activity is incorrect and must be altered using different deliverables.

Later in this chapter you will learn how to track and manage these changes through Change Management. (*2.3 - Managing the Project*)

Writing the Project Objective Statement

Overview

In the previous sub-section, you learned how to define project scope. In this sub-section, you will learn how to write the Project Objective Statement (POS).



Purpose

The purpose of a POS is to describe in 28 words or less *what* you will produce (deliverables) by *when* (schedule) with *what* resources (money/people/tools).

A strong POS starts the project off in a positive way with everyone agreeing on one simple sentence, which clarifies what the project will accomplish, by when, and with whom.

A POS also sets expectations and boundaries, and conveys to the project sponsors and team what the most important aspects of the project are.

Additionally, a POS can be helpful for change management. If, for instance, your scope changes so much that your POS becomes invalid, it could be an indication that you may need to revise the entire POAM (schedule, scope, resources).

Writing the Project Objective Statement, Continued

Example

Below are some examples of a POS:

- *Re-format the information systems chapter in the Widget Instructor Guide for Level 3 specialists in six months with at least one designer and one editor.*
- *Revise the Networking module aligned with 2005 performance objectives no later than 6/06 using three designers, one editor, and three Accomplished Performers.*

Process Overview

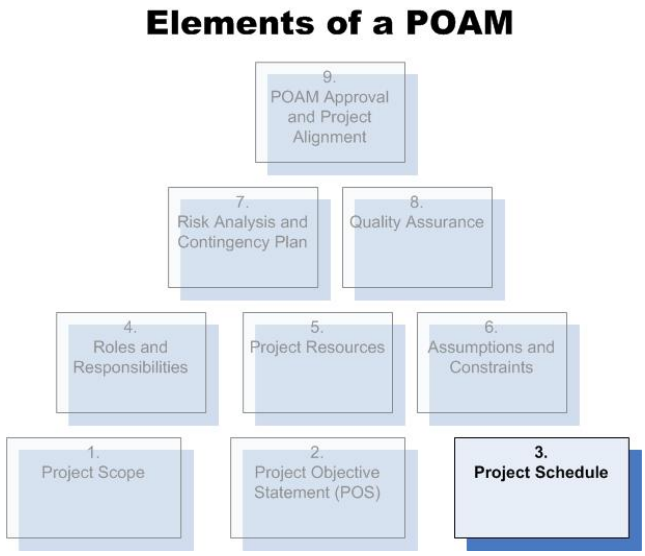
1. Gather Data
2. Validate the draft POS
3. Secure approval of the POS
4. Include approved POS in the POAM

Refer to Appendix A: JA-A.2: Writing the Project Objective Statement Job Aid for further details on this process.

Determining the Project Schedule

Overview

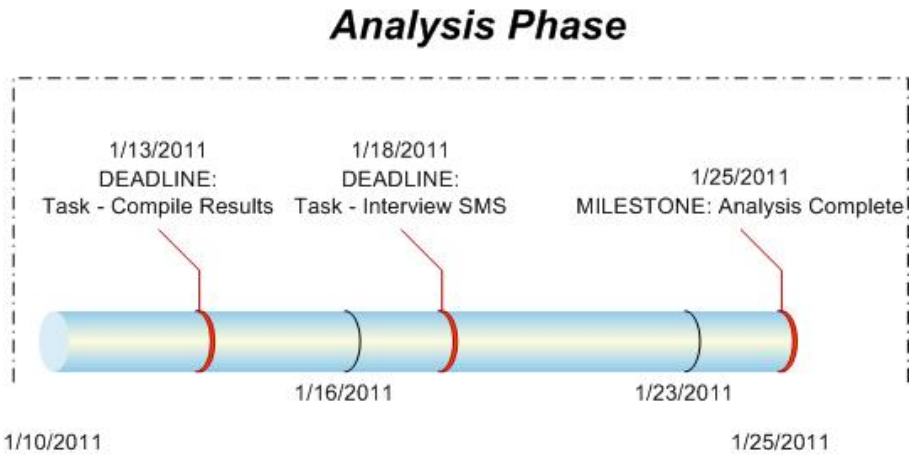
In the previous section, you learned how to define project scope and write your project objective statement (POS). This sub-section introduces the next element of your POAM document – the *project schedule*.



Purpose

The purpose of a project schedule is to clarify *what* will be achieved by *when* and with *whom*. A strong project schedule includes both deadlines and milestones.

- *Milestones* are major dates marking the end of an important phase (e.g., analysis phase, design phase).
- *Deadlines* are dates marking the completion of smaller activities that lead up to a phase milestone.



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Determining the Project Schedule, Continued

Purpose, Continued

Some common mistakes regarding a project schedule include:

- Not enough time estimated per task
- Tasks omitted for a key phase
- Tasks listed at too broad a level (e.g., one long task lasting six months, instead of multiple smaller tasks with two- to three-week durations)

Design Ratio Guidelines

As per industry standard, it is important to allocate appropriate amounts of time to complete the key milestones. You can use the following ratio guidelines[1] to help you determine the number of hours, days, weeks, or months to include on your project schedule:

Phase	Ratio
Needs Identification	10:1
Analysis	30:1
Design and Development	*See Below*
Implementation And Evaluation	10:1

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[1] Freisen, Kaye and Associates, *Designing Instruction: Support Manual* (Friesen, Kaye and Associates, 1998), p. 13.

Determining the Project Schedule, Continued

Design Ratio Guidelines, Continued

Design and Development ratios as per Instructional Strategies:

Instructional Strategy	Description	Design/ Develop Ratio	Total Ratio
Self Instruction	• Objectives and Tests Developed	3:1	53:1
Job Aid	• Checklist/flowchart • Manual • Online document	3:1 20:1 100:1	53:1 70:1 150:1
On-the-job	• Supervisor guide, tests developed	25:1	75:1
Leader-led	• Minimal materials • Sophisticated, detailed materials	15:1 30:1	65:1 80:1
Self-directed Learning – Paper	• Infrequent learner response • Frequent learner response; test for understanding and feedback incorporated	35:1 50:1	85:1 100:1
Self-directed Learning – CBT	• Interactive tutorial, minimal graphics, no special animation, etc.	200:1	250:1

POAM Schedules

The POAM shall include *milestone dates* for the key phases of the instructional systems design methodology: Analysis, Design, Development, Implementation, and Evaluation. Milestone dates identify the completion marker or date of a key phase.

The schedule in your POAM should be high-level. You need only to list the key milestones for each phase of your project. To accommodate changes in the project scope on the schedule, see the **Change Management** sub-section in *2.3: Managing the Project*.

Following are some examples of schedules.

Determining the Project Schedule, Continued

Example 1

This example shows phases and target completion dates:

- **ANALYSIS** complete: March 15, 2011
- **DESIGN** complete: June 1, 2011
- **DEVELOPMENT** complete: August 10, 2011
- **IMPLEMENTATION** complete: Oct. 5, 2011
- **EVALUATION** complete: Dec. 12, 2011

Example 2

This example includes phases, target completion dates and major milestones within each phase.

- **ANALYSIS** complete: March 15, 2011
  - Task Analysis done
  - Terminal Performance Objectives done
  - Performance Tests complete
- **DESIGN** complete: June 1, 2011
  - Curriculum mapping done
  - Content Sequencing done
  - Lesson design done
  - Testing strategies complete
- **DEVELOPMENT** complete: August 10, 2011
  - Instructor Guide/Student Guide done
  - Lesson/Lab/Exercises done
  - eLearning done
- **IMPLEMENTATION** complete: Oct. 5, 2011
  - Test runs done
  - Pilot course complete
  - Validation complete
  - Evaluation complete

Determining the Project Schedule, Continued

Example 3 Another way to present your schedule in a POAM is to provide detail surrounding key milestones (see the sample table below).

Status as of <ENTER DATE>		**Project: <TITLE>**					
Project Mgr: <NAME>		**Course ID: <ID HERE>**				**Course Code: <ENTER HERE>**	
Phase	Task	Est. Hrs	Est. Start Date	Actual Start Date	Est. End Date	Actual End Date	Owner
Analysis Done 4/30/10	Kick Off Meeting w/ Steering Committee	N/A	3/10/10	Xy/10	Xy/10	Xy/10	J. Smith
	SMS /AP identified / recruited	3	3/12/10	Xy/10	Xy/10	Xy/10	K. Harris
	Interviews Complete	5	3/12/10	Xy/10	Xy/10	Xy/10	K. Harris
Design Done 4/30/10	SMS/AP interviews	5	3/30/10	Xy/10	Xy/10	Xy/10	L. Marion
	Data Analysis	8	4/25/10	Xy/10	Xy/10	Xy/10	P. Georges
Development Done 5/30/10	Design analysis	16	Xy/10	Xy/10	Xy/10	Xy/10	K. Harris
	Design signed-off	26	Xy/10	Xy/10	Xy/10	Xy/10	K. Harris
Implementation Done 7/25/10	xxxxxxxxx	52	Xy/10	Xy/10	Xy/10	Xy/10	K. Harris
Eval Done 8/2/10	xxxxxxxxx	16	Xy/10	Xy/10	Xy/10	Xy/10	J. Marks
Wrap Up 9/12/10	xxxxxxxxx	4	Xy/10	Xy/10	Xy/10	Xy/10	L. Marion

***Note**: This table provides more detail than what would be included in a POAM. Your POAM typically just needs the key milestone titles and dates (see Phase column above).*

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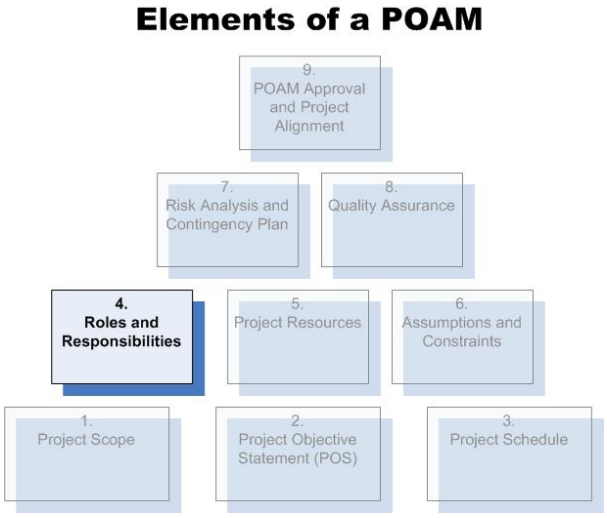
Determining the Roles and Responsibilities

Overview

In the previous sub-section you learned how to create your project schedule and define the milestone dates for the major phases of the project. This sub-section introduces the next element of your POAM document – *roles and responsibilities*.



Purpose

The purpose of the *Roles and Responsibilities* section of your POAM is to clarify who is doing what in your project. By clarifying boundaries and responsibilities at project launch, the Project Manager facilitates accountability and team cohesion.

The *Roles and Responsibilities* section of your POAM should list the names of everyone who will play an important role in the project, along with key responsibilities within that role.

Most projects include the following roles:

- Project Manager and/or Project Leader
- Project Sponsor
- Steering Committee
- Project Team Member
- Instructional Designers
- Subject Matter Specialists
- Accomplished Performers
- Instructors
- Graphic Designers
- Editors
- Learning Technology Experts (programmers)

Continued on the next page

Determining the Roles and Responsibilities, Continued

Purpose, Continued

Additional Information:

- **Names**: *Sometimes the Project Manager knows certain roles will be needed, but the actual people (names) have not yet been assigned at POAM approval. In this situation, list the required roles and the skills needed in each role, and include a comment clarifying that specific people will be assigned later.*
  - ✓ *Example: Subject Matter Specialist (SMS): Provide content expertise in Telephony, Networking Management, and Remedy System. Instructor level expertise required. Strong communication skills for designer interviews highly desired.*
- **Unexpected Roles**: *As your project progresses, new roles may surface. For this reason it's a good idea to state the possibility of some change in roles as the project moves forward.*
  - ✓ *Example: The Roles and Responsibilities in this POAM reflect current assumptions regarding scope, schedule, and resources. It is possible that the roles might change as the project moves forward. Any changes will be communicated in a timely manner through Project Reports and scheduled update meetings.*

Process Overview

1. Review the summary descriptions of some key project roles.
2. Determine which roles apply to your project.
3. Determine which roles are not listed in the table, but need to exist for your project.
4. Write a description of each role not defined.
5. Review your list of roles with your project sponsor(s) and management to confirm your understanding of the roles unique to your project.
6. Include your roles and responsibilities table in your POAM.

Determining the Roles and Responsibilities, Continued

Example

The following table shows how you might present the roles for your project in your POAM. See *Appendix C* for an example of this table within the POAM.

See *Job Aid (JA-A.4)* in *Appendix A* for a table of key roles and a description of those roles most common to ISD projects.

Title/Name	Role/Responsibilities
Project Manager / Jenna Harris	• **Drive** POAM creation and secure POAM approval by those funding or supporting the project at an executive management level • **Ensure** team members understand and accept their responsibilities and receive assistance when needed • **Take timely adaptive action** when needed; track/ make changes to adaptive action for desired outcome • **Set priorities** among project activities; track performance and project management against POAM processes/ criteria • **Arbitrate** and resolve conflict within the project
Project Sponsor / Training Officer - Rod Koniges	• Provide strategic guidance • Set priority • Ensure resources
Core Team Designers: - Sue Kreins - Jim Scott	Provide instructional design services for course analysis, design, development, evaluation, and implementation per POAM specifications
Subject Matter Specialists and Accomplished Performers	Names To Be Determined (TBD): • SMS: Provide technical expertise, overview, review, input, technical integrity of course materials • AP: Provide real world perspective, audience voice.
Editor / Ashanti Lewis	Provide graphic design and editing services per schedule milestones

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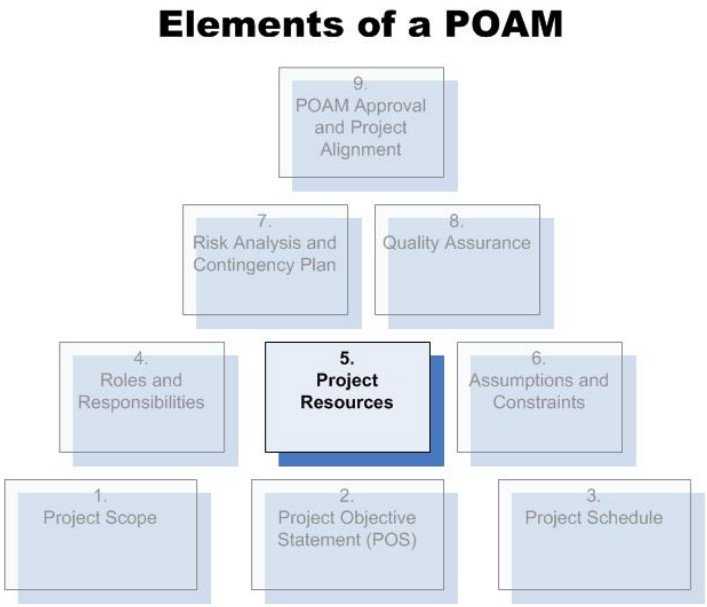
Determining the Project Resources

Overview

In the last sub-section you learned how to list the Roles and Responsibilities for your project. This sub-section introduces the next element of your POAM document – *project resources*.



Project Resources are the people, equipment, software, and other related materials required to produce POAM deliverables within a set schedule or timeline. A strong **Project Resources** section in your POAM ensures you have the necessary staffing, funding, and equipment for successful completion of the project.

Purpose

The purpose of the **Project Resources** section of your POAM is to identify the people, equipment, and other resources that are required to produce expected deliverables within the timeframe.

Some common mistakes when defining project resources include:

- Selecting team members based on technical skills alone, without consideration to soft skills (personalities)
- Not including a statement in your POAM stressing that resource requirements could change if deliverables (scope) changes.

Determining the Project Resources, Continued

Example

You may want to separate your resource requirements by *type* (such as people and non-people related resources). The following are examples of both, driven by specific project deliverables:

People-Related Resources:

To Produce this Deliverable	We Need People With These Skills	Individual(s) with Ideal Skill Set	Estimated Duration	Estimated Date
Instructor Guide and Student Guide for Telephony	DESIGNER: • ADDIE /ABCD • MS Live Meeting	(NAME) (NAME) (NAME)	25 days	Fall 2009 – Winter 2010
	EDITOR: • Graphic design • Formatting • Layout	(NAME) (NAME) (NAME)	4 days	Winter 2010 – Fall 2010
eLearning module	DESIGNER: • ADDIE /ABCD • Authoring tool (MS)	(NAME) (NAME) (NAME)	60 days	Fall 2010 – Winter 2011
*Resource requirements could change mid-project if the scope (deliverables) changes.				

Non-People-Related Resources:

To Produce this Deliverable	We Need This Equipment:	Estimated Duration	Estimated Date
Instructor Guide and Student Guide for Telephony	• Computer • MS Office • Printer	25 days	Fall 2009 – Winter 2010
	• Color printer • PhotoShop • PowerPoint	4 days	Winter 2010 – Fall 2010
eLearning module	• Computer • Authoring tool • Conference room with white board	60 days	Fall 2010 – Winter 2011
*Resource Requirements could change mid-project as design requirements are confirmed.			

Determining the Project Resources, Continued

Defining Resource Requirements

When defining the resource requirements, keep in mind the following:

- **You may not have a complete perspective of the required resources at the launch of a project.**

  In course development, the exact resource requirements may be unknown until after subsequent phases in the development process.

  For example, you might conduct an analysis and discover every student should have his or her own workstation to achieve an objective. If no workstations exist, you'll need to request these as an unexpected new resource.

  To position the project for success, inform your project sponsors *prior to POAM sign-off* that resource requirements will need to be reviewed and confirmed after each phase of the project.

- **Expect resource changes over the life of the project.**

  Just because you have the right team at project launch doesn't mean you'll keep the same people throughout the project.

  Communicate required skill sets to your project sponsors at project launch to stress the priority of keeping your current team intact. Communicate the potential impact to schedule and scope should the members of the team change mid-project.

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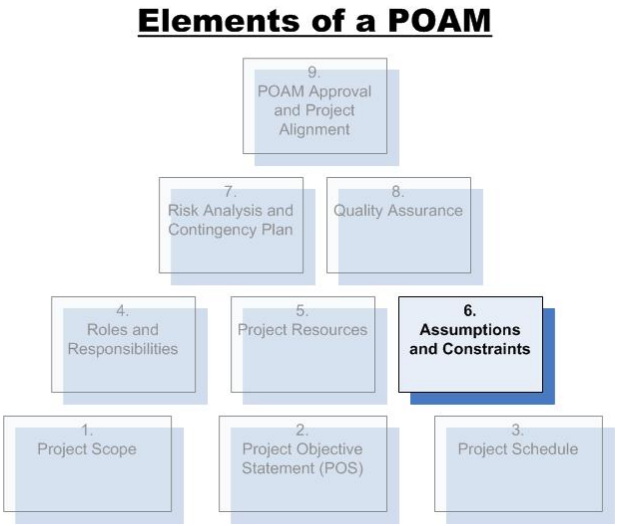
Determining the Assumptions and Constraints

Overview

In the previous sub-section you learned about resource requirements. This sub-section introduces the next element of the POAM document – *assumptions and constraints*.



Assumptions and constraints in the POAM highlight the things you assume to be true going into the project (the assumptions), and the things that everyone knows will present challenges during the project (constraints).

Purpose

The purpose of presenting an *Assumptions and Constraints* section in your POAM is to avoid miscommunication that could later derail the project.

Some common mistakes people make involving assumptions and constraints include:

- The assumption that everyone will remember the decisions made at the launch of the project regarding what will and will not be included, and thus, these assumptions are not documented
- The assumption that resources (such as team members) won't change during the project, and thus, these constraints are not documented
- The assumption that the parameters (scope) of the project won't change, so scope creep is not accounted for in the project schedule

Continued on the next page

Determining the Assumptions and Constraints, Continued

Purpose, Continued

The fact is projects change! If projects didn't change, we wouldn't need project managers to keep them on track.

One way to anticipate change and proactively control change is to list the assumptions and known constraints or challenges facing the project.

Assumptions: An *Assumptions List* highlights one to five items that you assume about the project. If any of these assumptions turn out to be untrue, it will impact the project.

Constraints: A *Constraints List* and a *Priority Matrix* helps to identify the challenges facing the project and how you will prioritize the schedule, scope, and resources.

Defining Assumptions and Constraints

You can avoid misunderstandings mid-project when you properly establish the assumptions and constraints. If assumptions are not properly identified, it could result in an impact to the scope, schedule and/or resources.

Defining Assumptions: Ask yourself the following questions when defining the assumptions:

- What has derailed other projects here?
- What assumptions am I making about schedule, resources, and scope that should be documented upfront at the beginning of this project?
- Is there a topic most likely to generate disagreement? What assumptions have I made about this topic that should be documented now?

Defining Constraints: Ask yourself the following questions when defining the constraints:

- What unique challenges are facing this project?
- What limitations have been placed on the scope, schedule, or resources that will challenge this project?
- Are there any trends that could jeopardize the success of this project?

Determining the Assumptions and Constraints, Continued

Example

Assumptions and constraints are unique for each project; however, examples of each are provided below:

Assumptions List:

- Team members will not be assigned additional projects
- Performance Criteria for Audience will not change after the project launch
- The Primary Audience is the E4 IT Specialist
- Certification will not be required

Constraints List:

- Limited to two Instructional Designers
- Instructors will only be available in July to review content
- No Accomplished Performers are available for the new technology tools, as these have never been used before
- The project must be completed for the September course delivery

Priority Matrix:

Area	Priority		
	Most Constrained (NO Change)	**Somewhat Constrained** (Can Change a Little)	**Least Constrained** (Change is OK)
Schedule			X
Scope	X		
Resources		X	

In this example of a Priority Matrix, the *Schedule* can change without creating a problem, *Resources* can change somewhat (for example, adding another team member), but the *Scope* cannot change without creating a significant impact. In other words, this project has specific deliverables that must be achieved, such as meeting job performance requirements.

Refer to *Appendix A, Job Aid (JA-A.5)* for steps to help in determining your project Constraints/Priority Matrix.

Determining the Assumptions and Constraints, Continued

Completing a Priority Matrix

Every project has expectations concerning the scope, schedule, and resources, but rarely does a project meet its original deadline and scope, using its original resources. Typically, priorities change due to constraints.

A Priority Matrix can help you rank the schedule, scope, and resources so that the highest **quality** product is delivered. Ranking these aspects assists you with decision-making throughout the life of the project.

Project sponsors may claim that scope, schedule, and resources are all equally important and equally constrained. For example, a project sponsor might say the project absolutely must be done by July (schedule), absolutely must be completed with only two designers (resources), and absolutely must achieve all performance criteria (scope).

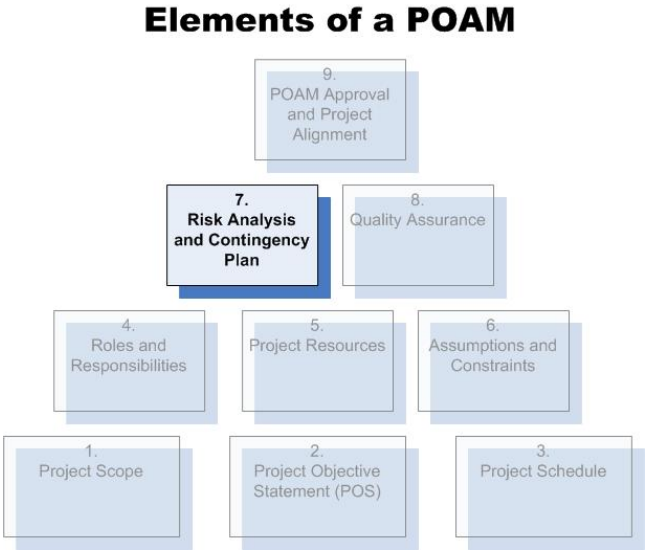
It is likely, however, that once the project begins, the sponsor will want to change something. For example, they may request a new course module, and extend the schedule or add another designer to the team to ensure that the new module is included. In this example, the scope of the project emerges as the most important aspect; however, at the start of the project the sponsor may not have realized this.

Ultimately, there is always a priority to schedule, scope, and resources: The sponsor expects his or her criteria to be met for one, while the other two have a little more flexibility. The Priority Matrix forces a discussion about priority and constraints with your project sponsor(s) before the project launch. It will also help your team in decision-making and priority-setting, and enhance sponsor satisfaction.

Creating the Risk Analysis and Contingency Plan

Overview

In the previous sub-section you learned about *Assumptions and Constraints*. This sub-section introduces the next element of your POAM document – *risk analysis and contingency plan*.



A *risk analysis* considers the likelihood of a specific detrimental event occurring and the potential impact on your project.

A *contingency plan* outlines what you might do if such an event does occur.

In essence, the risk analysis provides an assessment of the likelihood of something negative occurring, and the contingency plan offers a course of action if the event occurs.

Purpose

The purpose of creating a risk analysis and contingency plan is to increase awareness of what might derail your project, and to offer a solution to mitigate any negative impact should this event occur.

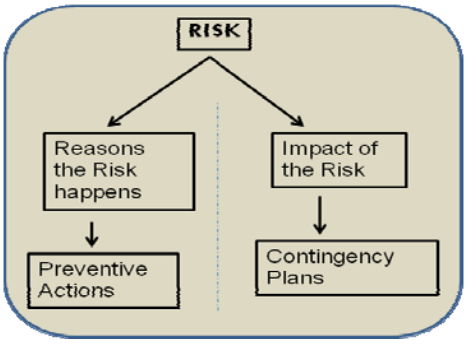
Every project carries inherent risks. Some risks are predictable, other risks are impossible to predict. Later, in the **Change Management** section, you'll learn how to mitigate risks that are impossible to predict. For now, though, we will examine *predictable* risks, and then the proactive *contingency planning* you can implement for each of them.

Creating the Risk Analysis and Contingency Plan, Continued

Common Terms

Common terms used in this process:

- **Risk**: An unexpected event that jeopardizes the project.
- **Preventive Action***:* The steps taken to prevent a known risk from occuring.
- **Contingency Plan**: The established course of action should the risk actually occur.



In the image above, *preventive actions* assert how to prevent the event from happening by taking action based on *why* it *might* occur, whereas *contingency plans* state what to do *after* a detrimental event has occurred.

- **Trigger**: An indication that a potentially detrimental event is about to happen (a warning sign).

  The trigger should be measurable. Examples of measurable triggers include:

  - *Our text books might arrive late.*
    - ✓ Trigger: Text books haven't arrived 10 days prior to course launch date.
  - *Our Internet service might fail.*
    - ✓ Trigger: Internet service was having trouble on Tuesday and our course starts on Thursday.
- **Owner**: The person who is responsible for recognizing when an event has happened. This person alerts the project management and helps implement the contingency plan.

Creating the Risk Analysis and Contingency Plan, Continued

Example

Risk Analysis:

Identified Risk	Potential Impact	Likelihood of Occurrence	Difficulty of Timely Detection	Overall Risk*
RPQs Change	Minimal to High, depending on RPQ	Moderate	Moderate	Moderate
Resources Compromised	High	Minimal	Low	Low
Certification Required	High	High	Moderate	High

Contingency Plan:

Identified Risk	Preventive Action	Contingency Action	Trigger	Owner
RPQs Change	Course Chief maintains communications with Rating Force Master Chief	Course Chief escalates to Project Leader for schedule impact	First discussion / rumor from HQ	Richards
Resources Compromised	Strong team communications to monitor progress and “scope creep” by other projects	Seek additional resources if we lose a resource or partial resource	New project; resource is pulled away	Escobedo
Certification Required	Course Chief maintains communications with Rating Force Master Chief	Course Chief escalates to Project Leader for schedule impact; additional resources sought as appropriate	First discussion /rumor from HQ	Dabrowksi

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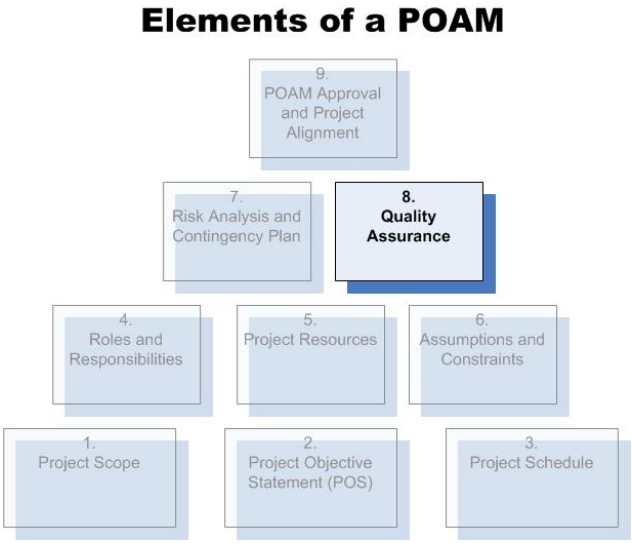
Determining the Quality Assurance Plan

Overview

The eighth element of the POAM document is *quality assurance*. We previously discussed quality as it relates to assumptions and constraints. In that section, we used a Priority Matrix to help you rank the schedule, scope, and resources so that the highest **quality** product is delivered.



"Quality" means different things to different people. For this reason it's important to define the meaning as it relates to the project. It's also important to state how quality will be evaluated throughout each phase of your project and by whom.

Many supervisors of curriculum development projects either have a standard for quality assurance or use the CAP checklists provided in Chapter 7. However, if there are no given standards for quality, or ownership of course review and approval throughout the ADDIE process, it's best to define it now. The **Quality Assurance (QA)** section in the POAM will help prevent any misunderstanding later in the project.

In *Chapter 7: Evaluation* you can find a series of checklists that serve as a *quality metric* from which one can ensure deliverables throughout the project are designed and developed to an established set of QA standards.

Determining the Quality Assurance Plan, Continued

Purpose

The purpose of the Quality Assurance Plan is to provide guidance during the project to ensure the project stays on track, and that it is developed according to defined quality standards throughout the project.

Some common mistakes regarding Quality Assurance include:

- Waiting until the test "Pilot Course" implementation to assess the quality of your materials, lesson plans and tests, rather than integrating evaluation throughout all phases of course development (Analysis, Design, Development, Implementation)
- Assuming everyone has the same definition of the term "high quality"
- Not assigning quality metrics to your project

Note: *This Standard Operating Procedures (SOP) Guide provides guidelines for quality assurance at critical stages of course development. For overviews regarding quality assurance pertaining to your project, refer to the specific chapter in this guide which provides more detail for each ADDIE phase.*

Example

The POAM shall include a high-level overview of who is responsible for Quality Assurance at key stages of the project, as depicted in the sample table below.

Quality Assurance Strategy	Responsible Party (-ies)
POAM Criteria Tracking	Project Leader
Deliverables Evaluation	• SMS – Technical Integrity • AP – Audience Relevance • Designers – Instructional Integrity re: Terminal Performance Objectives, Performance Tests, Performance Criteria
Curriculum Flow Evaluation	• Course Chief • Designers • Project Leader
Communications Plan and Project Reporting	• Project Leader • Project Manager

Continued on the next page

Determining the Quality Assurance Plan, Continued

Example, Continued

Quality Assurance is not just a "specific section" in the POAM. It also permeates every section of the POAM – from the measureable success criteria defined for your deliverables (scope) to the due diligence you spent estimating tasks for milestone dates (schedule) to specifying what people you'll need to get the job done (resources).

Quality Assurance for *scope*

Instructor Guide

Success/Quality Completion Criteria

- ✓ *Template SOP formatting*
- ✓ *Instructor script per PowerPoint slides*
- ✓ *Content Validation by Lead Technical SMS*
- ✓ *Maximum 105 pages, double-sided*
- ✓ *Completed by May 2012*

Quality Assurance for a *schedule*

Analysis Phase

Major Accomplishments Defined

- ✓ *Recruit SMS – 4 hours*
- ✓ *Interview SMS – 12 hours*
- ✓ *Compile results – 4 hours*
- ✓ *Route Major Accomplishments for Review – 2-4 days*
- ✓ *Revise per feedback – 3 hours*
- ✓ *Major Accomplishments approved – 1 hour*

Quality Assurance for *resources*

Core Team

- ✓ *2 instructional designers*
- ✓ *1 graphic artist*
- ✓ *1 eLearning programmer*
- ✓ *1 editor*

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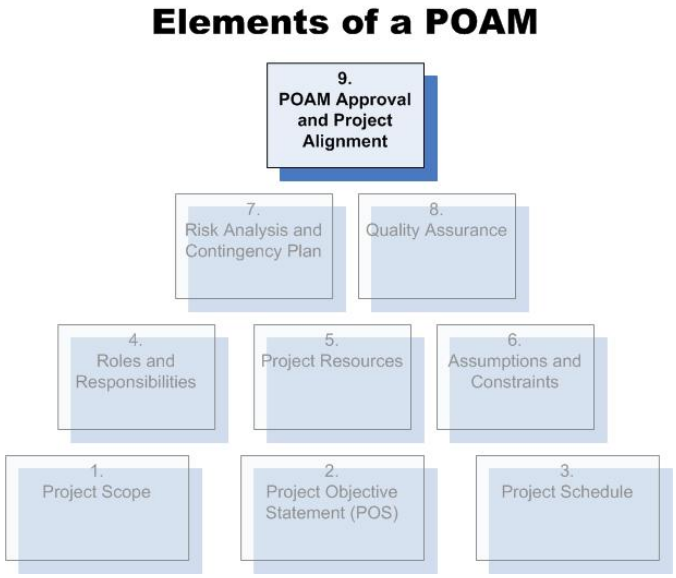
Approving the POAM and Scheduling the Project Alignment Meeting

Overview

The project alignment should include answering all the questions you need answered before you can begin with the ADDIE process. Several specific inputs are detailed as you move into Analysis, but each project begins with different requirements, so following the POAM process will lead you down the right path. Ideally, every project launches with a formal alignment meeting, and a completed and approved POAM draft.

The final element, or state, of the POAM includes document approval by all the stakeholders and the project alignment.



Purpose

The purpose of the POAM approval process is to formally review the completed draft POAM with your key stakeholders and project sponsors, to make any revisions, and then to secure formal sign-off of the POAM.

POAM approval is typically completed at a “kick off” meeting, or alignment meeting. The purpose of this meeting is to ensure everyone is in agreement with the project description provided in the POAM.

Approving the POAM and Scheduling the Project Alignment Meeting, Continued

Process Overview

To approve the POAM, the Project Manager performs the following steps:

1. Interview the Project Sponsor(s) for clarification on project scope, schedule, and resource expectations.
2. Create first draft of POAM sections working with appropriate resources to generate content.
3. Circulate a revised draft of POAM per feedback, and schedule a Kick Off/Alignment meeting for final POAM Approval.
4. Secure the POAM signatures at Kick Off/Alignment Meeting; Project Manager communicates POAM to Headquarters for Approval.
5. Set up the project infrastructure required to implement POAM and transition into managing the project (part two of the Project Management process).

Approving the POAM and Scheduling the Project Alignment Meeting, Continued

Example Below is an example of a POAM Alignment/Kick-Off Meeting Agenda, and a worksheet can be found in *Appendix B*.

ALIGNMENT MEETING AGENDA FOR Project: (NAME) (DATE)			
Project Objective: (*STATE)*			
Project Manager	Jane Doe	**Project Lead**	John Smith
Key Stakeholders			
	Executive Sponsor		Primary CG POC
	Branch Chief		Supervisor, IST
	School Chief		Contract Mgr.
	Quality Assurance		Project Team Members, Developers

Agenda

TOPIC	*NAME*	*TIME (min)*
Welcome and Introductions	xxxx	15
Discussion: POAM – PROJECT SCOPE	xxxx	15
Discussion: POAM – PROJECT OBJ. STATEMENT	*xxxx*	10
Discussion: POAM – PROJECT SCHEDULE	xxxx	10
Discussion: POAM – ROLES & RESPONSIBILITIES	xxxx	5
Discussion: POAM – PROJECT RESOURCES	xxxx	5
Discussion: POAM – ASSUMPTIONS & CONSTRAINTS	xxxx	5
Discussion: POAM – RISK ANALYSIS & CONTINGENCY PLANNING	xxxx	10
Discussion: POAM – QUALITY ASSURANCE	xxxx	5
Discussion: POAM – SIGN OFF (W/WO CHANGES?)	xxxx	5
Discussion: Trends? Next Steps?	xxxx	5

TRENDS

- New technology for phones could make xxxxx obsolete in 2008.

NEXT STEPS

- Project Manager recruits Subject Matter Specialists by March 23

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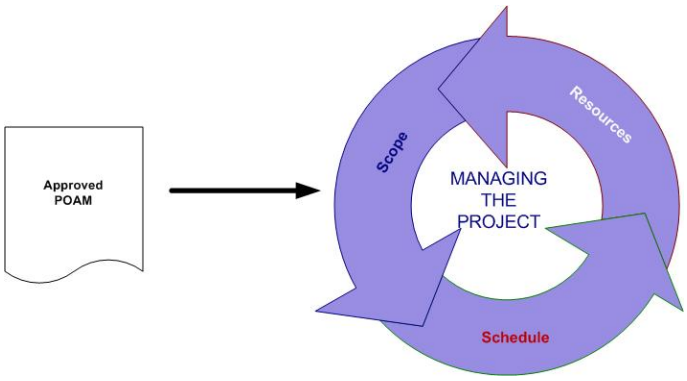
2.3 – Managing the Project

Introduction

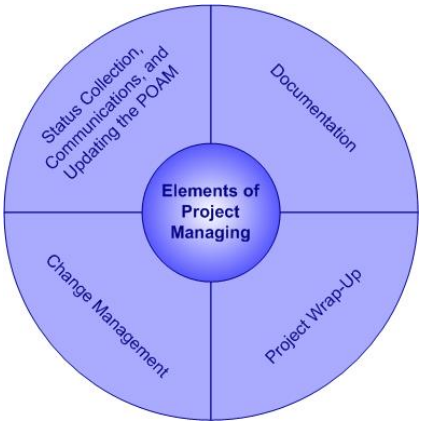
Overview

After completing the POAM and gaining project alignment, you are ready to launch your project and proceed with managing your project. In the Project Management implementation model, the project enters the next stage in which the scope, resources and schedule are monitored, tracked, and managed in order to produce the highest quality product while adhering to the POAM.



This stage enables you to monitor and manage the progress of the project to ensure the highest quality product possible while adhering to the expectations defined in your POAM regarding scope, schedule, and resources. This stage has four key elements:

- Status Collection, Communication and Updating
- Documentation
- Change Management
- Project Wrap-up



Introduction, Continued

Purpose

The purpose of *Managing the Project* is to ensure the goals of the project are met. The four elements that will help ensure the project stays on track include:

1. **Status Collection, Communications and Updating**
   How will status be collected, updated, and reported? To whom and when will this information be shared?
2. **Documentation**
   How will we manage version control? How will we manage template design, editing, and audit trails regarding how decisions were made (if applicable)?
3. **Change Management**
   When an unanticipated event occurs that threatens the project schedule, how will we respond in this situation? What is our change management strategy, and who will own its implementation? Who will evaluate the success of the strategy that was implemented?
4. **Project Wrap-Up**
   How will we conduct the project wrap-up/Hot Wash? How will we ensure an easy transition for future designers? How will we ensure current and future instructors maintain quality once ownership of the deliverables has transitioned?

When reviewing this section, consider the following options:

- ✓ Option 1: If you are new to project management or have never tracked a POAM before, read the entire section.
- ✓ Option 2*:* If you are experienced and successful in project management, skip to the sub-section of interest or review the job aids in *Appendix A*.

These four elements are described in the sub-sections that follow this introduction.

Introduction, Continued

Inputs

Managing the Project inputs include:

- **Status Collection, Communications and Updating**: How will the project status be collected, updated, and reported? To whom and when will the status be provided?
- **Documentation**: How will we manage version control? How will we manage template designs, editing, and audit trails regarding how decisions were made (if applicable)?
- **Change Management**: When something goes wrong or an unexpected situation threatens to push out our schedule or derail our project, how will we manage this situation? Essentially, what is our change management strategy, and who will own its implementation and the evaluation of its success?
- **Project Wrap-U**p: How will we conduct the project wrap-up? How will we ensure an easy transition for future designers? How will we ensure the level of quality of our products is maintained once they have been turned over to the instructors or customer?

Outputs

Managing the Project outputs includes:

- Timely informative project status updates
  - Per team-defined frequency/detail/format standards
- Easily accessed up-to-date documents
  - Clear online folder/file navigation with version control
- Decisive action with desired results
  - Change tracking and communication
  - Expectations managed with key stakeholders
  - Success evaluated per POAM (or revised) criteria
- Implementation of the transition strategy
  - Lessons learned documented
  - Future recommendations documented
  - Customer satisfaction / performance results

Example

Examples of some of the elements of Managing the Project are found in *Appendix C*.

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Status Collections, Communications, and Updating

Overview

The first element of managing the project is *Status Collection, Communications, and Updating*.

The outcome of correctly implementing this element (*Status Collection, Communications, and Updating*) is timely and informative project status updates, which follow a standard format for frequency, detail, and format.

Purpose

The purpose of collecting project status, communicating this status, and updating this status in a consistent way is to prevent miscommunication, misunderstanding, and missed expectations.

There is no such thing as "too much communication" when it comes to project management. The Project Manager must continuously ask the following questions:

- What is happening now vs. what should be happening?
- What is happening next and are we ready to do it?
- Does everyone know the answers to the previous two questions?

Process Overview

To create team guidelines for collecting, communicating, and updating project status, follow these steps:

1. Organize a meeting with your project's core team.
2. Review the questions below.
3. Document answers to these questions, and email these answers to the team.

Team Discussion

Status Updates

- How will we assess progress?
- How will we obtain the deadline and milestone statuses from project team members and others involved in the project?
- How often will we request this data?
- At what level of detail will we track the project?
- What method will we use to communicate status information (e.g., email, teleconference, voicemail, meetings)?

Continued on the next page

Status Collections, Communications, and Updating, Continued

Process Overview, Continued

Meetings

- What types (e.g., general, steering committee, core team), how frequently, and where will we hold meetings?
- Who will define the strategy and method for managing meetings effectively? Who will run the meetings? Who will produce an agenda for pre-meeting distribution?
- Who will track the time and agenda during the meeting?
- Who will attend which meetings?
- Who will write the minutes for action items and accountability, and distribute them after each meeting?

Reports

- What type of reports will we create, who will create them, and who will receive them?
- What content and level of communication is appropriate for whom?
- How detailed should reports be and in what format?

Escalation

- When is it appropriate to escalate a problem to the Project Manager?
- What is the course of action if the Project Manager is not available?
- What is the conflict resolution process, for example, if APs or SMSs do not agree with each other?
- Who has final decision making authority to resolve the conflict?
- What information will and will not be exchanged?

Status Collections, Communications, and Updating, Continued

Additional Considerations

Other considerations when creating a status tracking process include:

1. Determine the method(s) of status collection with the team.

   For example:

   - Will the team use simple email text, or a formal status template? If a template is expected, who will create this and post it in the master folder for team access?

2. Use the following list as a guide to determine the frequency of status collection with the team:
   - Let the Core Team determine the frequency of status collection
   - Usually every one to two weeks, depending on the complexity of the project
   - Usually less than 15 tasks per status update period
   - Progress data collected too frequently will cause too heavy a workload on the project team and Project Manager

3. Continuously collect both hard and soft data.

   Hard Data – Quantitative/Easy to measure and collect (a deadline date, # of hours to do a task, etc.) Ask: Did the task start yet? How long will this task take? Etc.

   Soft Data – Qualitative/Hard to measure and collect (trends, rumors, personality conflicts, charter wars). Soft data can have the worst impact on a project. Collect soft data at meetings, 1:1 debriefs, coffee stand chats, etc.

Status Collections, Communications, and Updating, Continued

Example

Below is one example of a project manager's strategy for collecting, communicating, and updating project status. *Appendix C* contains five different examples.

Type of Communication	Intended Audience	Method/ Frequency	Purpose	Owner
Status updates	CG School Liaison Team members	Online email / Weekly	One-way communication of accomplishments that week	Project Leader
Steering Committee	Members of Steering Committee	Quarterly / Face-to-Face	Formal update on project progress, with Q&A	Project Manager
Project Management Update	Project Leader and Project Mgr.	Weekly / Face-to-Face	Formal discussions on project deadlines, issues, adjustments, decisions	Project Leader
Team updates	Team members	Weekly / Face-to-Face	Formal discussions on recent problems, successes, etc.	All team members
Emergency Change Update	As appropriate per change	As needed/ Face-to-Face	Formal plan of action regarding change management	Project Leader and Project Manager and "other" per change

Documentation

Overview

The second element of managing the project is *Documentation*. The outcome of this element will be accessible and up-to-date documents.

Purpose

The purpose of documentation is to avoid duplication of effort or confusion as to file creation, location and version control. Clearly outlining the document or version control processes is recommended in your communication plan or POAM to ensure the following common errors do not occur.

Some common mistakes concerning documentation include:

- Older documents are accidently saved over newer documents because there is no version control
- It becomes impossible to locate the newest documents because files are nested inside folders nested inside even more folders, all with similar names and dates
- Team members use different templates, fonts, or header styles, resulting in a final product without cohesion or standards that requires extensive time for rework and editing which takes time away from design work

Process Overview

To ensure efficient documentation standards are applied to your project (including version control and templates), follow these steps:

1. Review the following questions with the project team members, and note the responses.
   - *What master folder will we use?*
   - *Who will manage the online folders?*
   - *What naming convention will we use for files?*
   - *Who will back up our online files and how frequently?*
   - *What version control will we use to track our latest files?*
   - *Where will we archive old documents that provide insight and an audit trail for decisions that were made?*
2. Distribute the responses to the team.

Documentation, Continued

Example Here is an example of version control and documentation guidelines for a project:

Documentation Guidelines		
Topic	**Description**	**Owner**
Master Folder	Located at http://www.syiw.skes.ed.mil	Team
Project Folders	One Folder per Topic with one nested folder for Archives: • *WIDGETS* o *Folder: Archives* o *Working File* o *Revised (for revisions to FINAL drafts only)* • *BOXES* o *Folder: Archives* o *Working File* o *Revised (for revisions to FINAL drafts only)* • *WIRES* o *Folder: Archives* o *Working File* o *Revised (for revisions to FINAL drafts only)*	Topic Owners
Back-Up	Weekly back-up for all files so we still have our latest files in the event of a catastrophic crash	James B.
File Naming Conventions	Filenames for working files are "*Topic name* + *Date (yyyymmdd)*" (e.g. *ProjectManagement 20100920.doc*) Filenames for final drafts are "*FINAL* + *Topic name* + *Date (yyyymmdd)*"(e.g. *FINAL ProjectManagement 20100920.doc*)	Topic Owners
Template Design	Use standard templates located in folder called TEMPLATES (in master folder)	Project Leader
Version Control Process		
• During the first week of each month, the design team will walk through an audit of version control for quality assurance. • If the content changes after the final sign-off, the topic owner will create a "*Revised*" sub-folder under the topic directory, and save the file in this folder using the following naming convention: "*FINAL+ Topic name + Date (yyyymmdd).doc*".		

Change Management

Overview

The third element of managing the project is *Change Management*. It's not a matter of *if* your project will change, but *when* and by *how much*. A project manager skilled in change management is able to keep a project on track, and informs the project sponsor(s) of changes in scope, schedule, and resources.

The outcome of this element is a project that maintains its primary focus despite changes in scope, schedule, or resources. It also maintains strong satisfaction with its project sponsors despite the need to reset expectations due to unexpected surprises.

Purpose

The purpose of change management is to ensure small and large changes to a project are managed efficiently. Some common mistakes concerning change management include:

- Underestimating the impact of changes to project deliverables.
- Saying "yes" to small requests without fully assessing how these seemingly small changes could push out a deadline, burn out your team, or negatively affect other deliverables.
- Not communicating the trade-offs for implementing a change request with your project sponsors. For example, explaining to a project sponsor that an extra job aid can be created but that it will push out the deadline three weeks.

Process Overview

To manage changes on a project, follow these steps:

1. Based on the data you have collected, use the following definitions to determine whether your project is experiencing a variance in scope, schedule, or resources.
   - ✓ *SCOPE – A scope variance occurs when someone or something impacts your deliverables; for example, a project sponsor decides they want your team to produce a Job Aid Booklet that was not listed on the POAM, or you produce the POAM deliverables but these don't meet the quality standards in the POAM and you must go back and rework the deliverables.*
   - ✓ *SCHEDULE – A schedule variance occurs when new tasks are added to your schedule unexpectedly, or when a task takes longer to complete than anticipated.*
   - ✓ *RESOURCES – A resource variance occurs when the project loses a resource or requires additional resources to complete a task.*

Continued on the next page

Change Management, Continued

Process Overview, Continued

2. Discuss the variance and impact to the project's scope, schedule, and/or resources with team members.

- Revisit the POAM's Risk Analysis and Contingency Planning for guidance.
- Revise or discard strategies that do not apply to the current situation (since front-end risk analysis cannot accurately predict every possible scenario).
- Revisit your assumptions and constraints in the POAM.
- Consider all possible solutions, including:
    - Allocating resources in a different way
    - Adding a resource from another department that is under-utilized
    - Exploring different ways to meet deliverables without impacting quality or criteria, etc.

3. Inform the Steering Committee of any variances as soon as possible.

***Note**: Don't assume longer work days will make up for a variance. Team burnout will not enhance quality and chances are you will still not resolve the variance completely. Similarly, it is recommended to inform the Steering Committee at the earliest opportunity of any variances to reduce the impact to the deliverables.*

Implement Change Management

One of the most important tasks for a Project Manager during POAM implementation is tracking any changes and assessing the impact of that change.

During implementation, every project goes through changes in scope, schedule, and/or resources.

The Project Manager must analyze the data for these changes, determine the impact to the project, and then plan and implement the appropriate adaptive action.

Change Management, Continued

Example

The following table provides change management guidelines for a project.

Step	Action
1	*Request for Change* All change requests must begin with the PROJECT LEADER
2	*Document Request for Change* Project Leader documents the Request for Change, including: • Date of Change: • Description of Change: • Expected Impact of Change: • Rationale for Assessed Impact: • Recommendations to Mitigate Change: • Decision-Makers Regarding Change Approval: • Agreed upon Adaptive Action, if Any: • Change form must be approved by Project Manager and Project Leader
3	*Decision on Request for Change* Project Leader documents the decision, communicates the decision to the team/stakeholders along with the ramifications to the project, and saves this document in the folder, *CHANGE MANAGEMENT DECISIONS*.
4	*Action / Non Action* Pending the decision, the Project Leader or Project Manager initiates the action for change (or takes no action, depending on decision).

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Project Wrap Up

Overview

The fourth and final element of managing the project is *Project Wrap Up*.

The wrap up (or *post mortem*) meeting offers the project team a forum to share information such as lessons learned, best practices followed, and other facts about the project, as well as opportunities to recognize the effort put forth by the team. The wrap up meeting provides closure of the project for all those involved in it, as well as a foundation of knowledge for the next project.

Purpose

The purpose of the project wrap up is to revisit the project requirements and confirm that these requirements have been met to the project sponsors' satisfaction. The project wrap up is also the time to confirm the files are well organized for easy access by future design teams.

Some common mistakes during Project Wrap Up include:

- Not recognizing the value of holding a wrap up meeting upon the completion of a successful project
- Using the wrap up meeting to blame individuals or circumstances for an unsuccessful project
- Not including the design team – the people actually working on the project – in the wrap up meeting to understand what happened and why, and how things might be adapted in the future

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Process Overview

Sometimes a team will think their project is done, only to discover there is still work to be done because a project sponsor expects more!

When preparing to wrap up your project, keep in mind that a project is only ready for completion when one of the following criteria are met:

- ✓ All requirements have been satisfied and the Executive Sponsor and Key Project Sponsor(s) and/or Steering Committee have approved all project deliverables, OR
- ✓ Project Sponsor(s) have decided to terminate the project before planned completion, substantially altered the expected deliverables, or postponed the project completion

Continued on the next page

Project Wrap Up, Continued

Process Overview, Continued

Project wrap up should include an audit history trail for future designers, instructors, or anyone accessing your project's documents after your project team has disbanded.

To ensure an effective project wrap up, consider the following recommendations:

- If the success criteria of a deliverable changed mid-project, include documentation of this change when the deliverable is submitted
- Ensure everyone who needs to access your materials knows how to do so (e.g., instructors know where the Instructor Guides are located, etc.)
- Ensure a quality assurance process is in place that retains the integrity of the deliverable once your team has disbanded. For example, consider saving documents in PDF "read-only" format if a formal review cycle is required for changes to these documents.

Planning the Wrap Up Meeting

When planning a project wrap up meeting, it's important to include a diverse cross-section from the team. This meeting should include all levels of the project, from the individual contributor to management. These include:

- ***Required***: Core Team (including designers and developers), Project Lead, Project Manager, customer representation (e.g. project sponsors)
- ***Strongly Recommended***: Executive Project Sponsor, Neutral Facilitator
- ***Optional***: Extended team members

When conducting a Project Wrap Up meeting, it's critical to focus on enhancement and the lessons learned, as well as team recognition. If the project encountered many challenges, the facilitator must ensure the meeting remains positive and avoids blaming individuals or circumstances for unmet expectations.

Project Wrap Up, Continued

Example

The following table provides a sample agenda for a project wrap up meeting. You can also find this template in *Appendix B*.

Project: (NAME) (DATE)			
Project Objective: (STATE)			
Project Manager	xyz	**Project Lead**	xyz
Key Stakeholders			
CDR xyz (TO)	Executive Sponsor	ITC xyz (CC)	Primary CG POC
LCDR xyz	Branch Chief	LT xyz	Supervisor, IST
ITCM xyz	School Chief	xyz	Contract Mgr.
ITCS xyz	Asst School Chief	xyz	Contract Team Lead
xyz (DCD)	Quality Assurance	xyz xyz xyz	Project Team Members, Developers
Agenda			
1) Welcome, Purpose		xzy	5 minutes
2) Revisit Project Scope		xyz	10 minutes
3) Revisit Project Schedule		xyz	15 minutes
4) Revisit Project Resources		xyz	10 minutes
5) Discuss Best Practices and Lessons Learned		xyz	15 minutes
6) Project Team Recognition		xyz	20 minutes
TRENDS			
○ DHS Security Requirements (certification?) ○ Phone System- Moving to one "Brand" ○ XYZ phone system does not meet DOD regulations and will be phased out ○ C4IT SOP which may set standards for zyz			
NEXT STEPS			
1) J. Higgins and W. Smith to confirm folder structure and back up. 2) I Reynolds and T. Richardson to document lessons learned and best practices and distribute to project team and post in master folder.			

Project Wrap Up, Continued

Wrap Up Meeting

The following information is commonly discussed during a wrap up meeting:

1. Describe what went well (strengths)
2. Describe the lessons learned that could benefit other projects
3. Discuss the overall process including:
   - New processes that should be created
   - Existing processes that need to be refined
   - Old processes that no longer work and could be removed
4. Discuss the effectiveness of the communications plan
5. Discuss how the lessons learned will be recorded and applied to future projects and processes
6. Discuss the POAM regarding accuracy, hindsight, changes, and revisions.
7. Discuss the change management and quality assurance processes.
8. Acknowledge individual efforts that contributed to the completion of the project.

Chapter 3

ANALYSIS PHASE

Table of Contents

Continued on the next page

3.1 – Chapter Introduction

Phase Overview

Synopsis

As you learned in Chapter 1, the first phase in the Instructional Systems Design (ISD) model of ***A***DDIE is Analysis. If you are here, then **it has already been determined** that a resident training program is the best solution. In most cases, some form of an analysis was conducted that identified causes of the performance problems to be skills and knowledge (S/K) and have determined that training is indeed the appropriate solution.

U.S. Coast Guard Training System Standard Operating Procedures (SOP's) Volume 2 focuses on Analysis. Coast Guard analysis efforts are focused on performance at the task, step and task sub-step level. In this chapter, we will build on the analysis effort performed for you and expand on these areas:

- Task detailing (task analysis)
- Target audience analysis
- Identifying course parameters and constraints

In this phase, it will be up to you to determine the additional information necessary for designing and developing a valid and reliable instructional training program with the highest fidelity possible. The result will be training that is both meaningful and effective for the learner and the organization.

Phase Overview, Continued

Audience

Primary Audience: Coast Guard (CG) Training Center active duty course developers and instructional designers, as well as CG civilian course developers and instructional systems specialists.

Secondary Audience: CG Training Center Performance Systems branch managers supporting the instructional designers/course developers; the subject matter specialist, the project lead, project manager, school chief and/or others who have been identified as having some role in the ISD process. Additionally, the secondary audience may include instructional designers employed with contracted companies performing instructional design for the CG, or equivalent individuals who have curriculum/course development responsibilities, including instructors performing course maintenance with ISD oversight.

Due to the varying quality and types of data input sources, the requirement for comprehensive and accuracy data, as well as the range of data details and considerations required when making instructional decisions, it may be advised throughout the chapter to consult with an ISD professional, or graduate of one of the following approved curriculums:

- *Coast Guard Course Designer Course (CDC)*
- *SABA Knowledge Service Peak Performance System workshops (previously known as Accomplishment-Based Curriculum Development (ABCD) workshops) taught by staff at TRACEN Petaluma, TRACEN Yorktown and ATTC Elizabeth City.*

Purpose

The purpose of analysis is to determine the training requirements that will be used for designing and developing the resident instructional training program.

Phase Overview, Continued

Inputs

The inputs for this phase of a resident instruction course development effort can vary widely, depending on the type of analysis that was performed per CG Training System SOP, Volume 2. Common analysis efforts that lead to resident instruction course development efforts include (to follow is a description of all approved methodologies):

- Front end analysis (FEA)
- Job task analysis (JTA)
- Needs assessment
- Occupational analysis (OA) – producing updated Rating Performance Qualifications (RPQs).

In general, the types of inputs you may need include any or all of the following:

- Exact performance problem(s) to be addressed by the training (overall goal for the training)
- Access to any necessary manuals, directives, policies, regulations or other documents that may impact the course content or delivery conditions (also known as extant data)
- Access to accomplished performers (APs) who are currently doing the work
- Access to subject matter experts (SMEs) for the job, job specialty, and tasks
- Access to the analysis report which should include:
    - Job and/or task data
    - Performance support requirements (the results from the job aid versus memory algorithm)
    - General assumptions for the resident training program that you are implementing with this effort
- A complete list of current and updated RPQs (applies to “A” schools only)

Phase Overview, Continued

Outputs

This chapter explains how to conduct a task analysis, as well as enables you to determine the training requirements for the design and development of the resident instructional training program (i.e., the course).

The key outputs –or deliverables– for this phase include:

- Task details
- Target audience analysis
- Course parameters and constraints

Ensuring Success

During this phase, as you collect your data, you should frequently be evaluating the impact or the effect the collected data might have on the Design and/or Development phases of the training program. Speak with your supervisor or project manager if data indicates that the scope of the project may need to be reevaluated or if additional resources are needed to keep the project on schedule.

Additionally, at each major milestone and/or as questions arise; seek the counsel of an experienced ISD ADDIE professional to ensure that your data is appropriate for the instructional goals for your program. This individual can also ensure that you are following the SOP guidelines and other best practices in the field of instructional design and development.

Types of Analysis

Overview

USCG Training System SOP, Volume 2 focuses on Analysis, and details the process for how to conduct each of the following methodologies:

- Strategic needs assessment (SNA)
- Front end analysis (FEA, NPP or Diagnostic)
- Training requirements analysis (TRA)
- Job task analysis (JTA)
- Cost benefit analysis (CBA)
- Occupational analysis (OA)

Not all the above are typical inputs to a resident instruction course development effort, but it's important to be aware of all possible sources.

Strategic Needs Assessment (SNA)

The purpose of an SNA is to examine the external and internal factors that affect performance within the context of an organization's business strategy and identifies the gaps between the current and desired conditions.

Front End Analysis (FEA)

FEA is a systematic process for describing new performance; determining inhibitors to competent performance; and recommending the skills and knowledge (S/K), environmental (ENV), motivation/incentive (M/I) and assignment and selection (A/S) interventions that must be put in place to help Coast Guard workers achieve optimum performance.

When the problem is poor performance, it provides a rigorous and standardized method for performing gap analysis at the task level. It also applies an equally rigorous and standardized approach to converting FEA data interventions for improving the worker's performance into in the following root causes categories:

- Skill and knowledge (S/K)
- Environmental (ENV)
- Motivation and incentive (M/I)
- Assignment and selection (A/S)

**The Coast Guard uses SABA's Peak Performance System © FEA methodology*

Types of Analysis, Continued

Training Requirements Analysis (TRA)

The purpose of a TRA is to narrow the scope of the analysis project to give the Program Manager (or other client) a clear idea of what the performance needs are and what training intervention is best suited to meet those needs in a cost effective manner.

Job Task Analysis (JTA)

The primary objective of a JTA is to gather information about the difficulty, importance and frequency of tasks for a particular job or function, and to make recommendations for how best to support the task-level performance under review. Job aid and train/no train decision utilize information from task data that is collected on each of the tasks determined necessary to perform the particular job. The help in the JTA, analysts use the following task data (DIF data) to help in these decisions:

- Difficulty
- Importance
- Frequency

The data collected on each tasks is then used in algorithms to make train/no train decision and determine under what circumstances job aided tasks require introductory or extensive training. The outcome of a JTA results in the following performance intervention recommendations:

- No training required
- Job aid
- On-the-job training
- Job aid with introductory training
- Job aid with extensive training
- Train to memory

Looking at one's job performance determines what should or should not be included in a training program, how much will be taught, the instructional sequence and what will be evaluated. Section 3.4 of SOP, Volume 2 (Analysis) explains the JTA process in greater detail.

Types of Analysis, Continued

Cost Benefit Analysis (CBA)

Cost benefit analyses are a Coast Guard requirement that should be completed before the organization will resource a project and are usually part of a larger analysis effort, such as a FEA. During a CBA, the analyst(s) must identify the cost associated with each S/K performance improvement delivery option, and then present that information so that the decision makers can compare each option and select the one that best works for the organization.

Occupational Analysis (OA)

Occupational Analysis is a process that measures the job performance requirements of an occupation. OA takes a snapshot of an occupation's world of work at a particular point in time. OA, as an integral part of the Rating Performance Qualifications (RPQ) process, is mandated by the Enlisted Performance Qualifications Manual (EPQM), COMDTINST 1414.8C. The Coast Guard follows a prescribed cycle for conducting an OA for each of its enlisted ratings.

The goal is for RPQs to be written at the task level, with the steps already identified from a panel of APs during the rating review. This allows course developers to more easily convert the RPQs into terminal performance objectives (TPO) for resident “A” schools.

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3.2 – Task Analysis

Introduction

Overview

Task Analysis (TA) may be required if an analysis reveals the actual task performance is different than existing curriculum or if the task (performance) has changed– resulting in new curriculum. It is the process by which you identify the optimal or desired performance requirements for a job or job specialty. It is the course developers job to pick up where the analyst left off, and complete the collection of step-level data – **task detailing**. Along with identifying the steps, other specific task characteristics are gathered such as the complexity and frequency of the task. Additionally, details about how the task is performed (such as any required tools and equipment, or any safety cautions or warnings that must be observed when performing the task) are also captured.

Most, if not all, resident curriculum development projects should result from a formal analysis conducted in accordance with *SOP Vol. 2: Analysis* - that is the goal for all Coast Guard training programs. If there is no approved analysis associated with your project, or if you suspect that the analysis is not valid (e.g. does not reflect current policies, practices, equipment, etc.), see your Project Manager for guidance. Course developers shall not design or develop training unless an analysis was conducted, and it's been determined that training is indeed the solution to the performance problem. Earlier in this chapter the various approved methodologies for conducting an analysis were discussed.

Purpose

The purpose of conducting task analysis is to produce a step-by-step description of what a competent performer does to complete the associated tasks that produce the required major outputs for the job/job specialty the way you want others to perform.[1] From this information, you will derive specific skills and knowledge requirements which will form the basis for the content of the course (including the testing standards for evaluating required performance in a training environment).

[1] Mager, Robert F., (1997) Making Instruction Work or Skillbloomers, page 55, CEP Press, Atlanta, GA Second Edition

Introduction, Continued

Scope

Task analysis defines:

- The circumstances under which each task is performed (conditions)
- How each task is actually performed (behavior)
- How well each task must be performed (standards)

Task performance details collected during this phase will be used to help the instructional designer or course developer determine a sound instructional strategy, then design and develop the resident instructional products that will support the strategy.

Inputs

To begin task analysis, you must have the following:

- Extant Data – the various manuals, instructions, policies, regulations, or other forms of facts, figures, records, forms, etc., that are available and help to identify the job, job specialties, and/or task data identifying optimal performance and/or the actual or current performance
- Access to APs for interviews and observations
- Access to SMEs or other designated technical reviewers for task and data validation
- Access to the source analysis report, task listing and task data already collected

Outputs

The outputs of task analysis document real world optimal job performance that the resident instruction should emulate. The benefits from an accurate and complete task analysis are as follows:

- A detailed description of how each task is performed competently, that is, to standard (performance increments).
- A detailed breakdown of each task into manageable chunks, supporting optimal learning (training increments).

Introduction, Continued

Verify Technical Accuracy

Throughout the process, it is important to verify the technical accuracy and completeness of the various task analysis efforts. For example, during task analysis the task details and step data information provided by a proficient performer were vetted through the individual(s) identified on the project team as having responsibility for technical accuracy for the tasks.

It is important that early in the process you continually monitor the data you are collecting for accuracy and completeness. It is suggested that you work with your designated APs and SMEs to review and validate your data. Hopefully, you also look for any changes in the organization, the learner, or the job that might affect the content or delivery of the resident instruction. If changes occurred, then you should evaluate the impact to the training requirements data that you have already collected and adjust the requirements as needed. If you do that, then you are almost guaranteed a successful evaluation of the outputs from this process.

Using the Quality Assurance checklist job aid presented in *Appendix E JA-E.4*, you can evaluate each output/deliverable for accuracy and completeness. If any output fails the evaluation, then correct as needed and resume the evaluation process.

Introduction, Continued

Important Terms

In order to conduct task analysis, there are some common terms you should know. They include:

Term	Definition
Behavior	How each task is actually performed; the actions (tasks and steps) a person takes to produce an output. These actions can be either overt (observable) or covert (cannot be observed such as thinking or decision making).
Condition	The circumstances under which each task is performed.
Job	A job consists of the performance elements that are the responsibility of an individual assigned to a specific billet; such as Storekeeper (also referred to as a *job title*).
Job Specialty	An additional means of breaking down a job into areas of expertise or major area of specialized performance. For example, Inventory Management, Procurement, or Shipping and Receiving are all job specialties for Storekeeper.
Standard (also known as criteria)	A measure of quantity and/or quality attached to specific job tasks and/or outputs; generally stated in: time (how long it takes to complete), accuracy (how well it is done), safety (how safely is it produced), and productivity (quantity in a given time period).
Step	An arbitrary unit of behavior that is a smaller component of a task.
Task	A unit of behavior (activity) that has a definite beginning, contains at least two steps, and results in an end which has a specific, identifiable, and measurable outcome.
Task Characteristics	The identifiable traits of a task that help determine how the task is performed, such as the required tools and equipment, any safety cautions or warning, performance standards, where the task is performed, and the steps for completing the task to standard; also includes the performance factors of Speed, Frequency, Complexity, and Consequence; used in making job aid versus memory training decisions.

TA: Collect Task Details

Overview

This is the process you will use to identify and record specific performance information for each task. This activity involves collecting all relevant information about performing a task correctly. During this part of task analysis, you will be answering questions such as:

- When is the task performed?
- How is the task performed?
- How would you know when you're done?

Task details also include collecting the specific steps necessary to complete each task (if not done for you as part of the analysis). You will need to determine the steps and the sequential order of how the steps are performed. You will be looking to identify whether the steps for the task are mainly mental (cognitive) or physical (psychomotor). [2]

Task Characteristics Data

Task data was already collected for you during the analysis (specifically the performance factors of difficulty, importance and frequency). These characteristics when plugged into a specific job aid versus memory algorithm (as explained earlier in the definition of a JTA and FEA) results in one of the following performance intervention recommendations:

- No training required
- Job aid
- On-the-job training
- Job aid with introductory training
- Job aid with extensive training
- Train to memory

[2] Mager, Robert F. (1997), Making Instruction Work or Skillbloomers, pg 18, CEP Press: Atlanta, GA, Second Edition

TA: Collect Task Details, Continued

Steps

To ensure task performance accuracy, the best way to obtain task details and associated step data is through interviews and observations of APs and SMEs. The process for collecting task details has been outlined in the steps below. Additionally, a job aid has been included in *Appendix E* which shows the process for collecting specific task details in greater detail, *Appendix F* provides worksheets for documenting your task data as you collect it.

Step 1: Contact APs/SMEs to schedule visit(s) for interviews and observations.

Step 2: Using the Task Details worksheet in *Appendix F.1*, interview the AP to collect the specific task data. (See the job aid in *Appendix E* for a complete list of task detail data requirements.)

Step 3: Ask the AP/SME to review the steps with you from the start of the task to the output (completion of the task).

Step 4*: If the task is complicated with many steps and/or decisions, then diagram the steps in a flowchart. A flowchart provides a means for capturing the sub-steps (also known as sub-sequencing) and decision points.

Step 5: If time permits, observe the AP/SME performing the task. This is the best way to validate the task detail data and to double-check that all of the steps (including the decisions points) have been captured and are in the correct sequence.

Step 6: Repeat this process for every task on the Job Task Inventory list.

***Note:** From step 4; if your tasks are very complex with multiple steps, have a low tolerance for errors, or when speed of task completion is critical; you should consult with an ISD professional, or graduate of one of the SABA Knowledge Services Peak Performance System workshops (previously Accomplishment-Based Curriculum Development (ABCD) workshops) for further mapping out of the task in a system (paradigming).*

TA: Collect Task Details, Continued

Additional Resources

There are additional resources available for collecting task details, including:

- CG Training System SOP, Vol. 2: Analysis
- CG Training System SOP, Vol. 6, Appendix B Standard Verb List (a useful resource for writing task statements)
- SABA Manual, *Volume 1 - Optimizing Human Performance*
- *Making Instruction Work*, by Robert F. Mager – second Edition, Chapter 6 – Task Analysis
- *Task Analysis*, by Dr. Alice K. Waagen, Issue 9808 in the 2005 Instructional Systems Development Informational Lifeline Collection, pgs 91 – 108, ASTD Press

Example

Below is an example of a completed Task Analysis – Task Detailing worksheet, WS-F.1.

WS-F.1	Task Analysis – Task Detailing		
Project	Ice Rescue, Basic		
Designer	Paul Robbins, PSB TCP	**Date**	8/9/12
Task	Inspect equipment	**Task Code**	A.3
Source Analysis	Ice Rescue NPP FEA, May 2011		
References		**Equipment Required**	
9th District Ice Rescue Manual, D9INST M16130.1		MARSARS Shuttleboard Cold water rescue slings Ice rescue dry suit and associated personal protective equipment	
General Performance Support Decision for Course	☐ Job Aid ■ Job Aid with Extensive Training ☐ Job Aid with Introductory Training ☐ Train to Memory,		
Steps (Enabling Objectives)		**Prerequisite Knowledge**	
A.3.1	Inspect SKF-ICE (If received)	Boat crew qualified on SKF-ICE	
A.3.2	Inspect MARSARS Shuttle Board	Location and use of Shuttle Board	
A.3.3	Inspect cold water rescue slings	Location and rigging of sling	

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3.3 –Target Audience Analysis

Introduction

Overview

Target audience is the collective name given to the intended students of the Resident Training program. *Target audience analysis* is conducted to determine the key characteristics about the learners. By knowing certain characteristics about the learner, the training can be designed to make the best use of particular instructional strategies that may be better suited to one target population over another. For example, it will help you identify which examples, what vocabulary, or even what media to use. Knowing who will be attending the training is a key component in making the instruction work[3] in terms of efficiency and effectiveness.

Purpose

A target audience analysis is conducted to determine the *entering* key characteristic about the learner. In other words, their "entering state" is what they already know and/or do prior to instruction. By identifying this information, you can design the instructional program to take them from where they are when entering the training, to where they need to be (performing to standard) when they leave the training (i.e. from their present state to the desired state.[4]) The following formula depicts this concept:

What they need to be able to do
- What they can already do
= The Instruction (*the intervention*)

[3] Mager, Robert F. (1997). Making Instruction Work or Skillbloomers, pg 20. CEP Press: Atlanta, GA

[4] Waagen, Alice K., Task Analysis, Issue 9808, *Chapter 9 Target Population Description,* pgs. 91 – 103, (2005) Instructional Systems Development Information Lifeline Collection, ASTD Press.

Introduction, Continued

Inputs

The following information is needed before you can develop the target audience profile:

- Current job descriptions for the rating(s) and rate(s) including minimal requirements for the rating(s)
- Access to instructors familiar with the current characteristic of intended learners and/or student trends in related “A” or “C” schools
- Access to supervisors or other SMEs for intended learners

Outputs

The output of this task is a detailed description of the student that accurately reflects what they currently know and do. It not only provides a starting point for the instruction, but the profile can be used to help shape the content of the instructional program by providing insight, which in turn can help determine design decisions like:

- What types of examples to use
- Best use of particular instructional strategies
- What vocabulary to use
- What media to use
- Learner motivation

Develop the Target Audience Profile

Overview

When developing the target audience profile it is important for you to remember that the more diverse the target audience is, the more detailed your data needs to be. The more you can learn about the target audience, the more likely you are to have a successful instructional product. In addition to the typical demographic type of data (male/female distribution, afloat/ashore distribution, age range, percent attending directly from boot camp, etc.), target audience analysis will attempt to describe the learner as she/he enters into the learning process (i.e. the course) by answering questions like:

- What training or experience have they had in relationship to the training you are designing?
- What attitudes and/or biases do you expect them to bring?
- What tools or equipment do they already know how to use?
- Why are they taking the course?
- What cultural issues need to be considered?
- What language issues (i.e. English as a second language) need to be considered?
- What is the educational range?

Develop the Target Audience Profile, Continued

Steps

The basic process for developing the target audience profile has been provided in the steps below. *Appendix E* provides you a detailed job aid which describes the process in greater detail. Additionally, *Appendix F* provides a worksheet*,(WS-F.2)* for documenting your results.

Step 1: Consider the students/learners entering into your course and write down everything that you know about them. Trigger questions are included with the worksheet.

Step 2: Describe the range of characteristics you know about the students. For example, let's say 60 percent of the students who will attend the new "A" school come directly from boot camp. You could assume, then, that many of them may not have had many "real world" experiences in the CG. This knowledge will shape the examples that you use in the instructional program, such as how much detail needs to be included in the practice scenarios.

Step 3: Identify any missing data and determine who or what might be the best source for the obtaining the missing data based on your data collection plan. Arrange for access to the source and collect the data.

Step 4: When you have completed as much as you know or have learned about the target audience, set aside the profile. Remember, this is a working document so you can add to it if additional information about the learner is discovered as you continue with the rest of the Analysis phase.

Note: *The output from this effort is not published or distributed. It is a working document to aid in the Design phase and to provide an audit trail for the decisions made during this phase.*

Develop the Target Audience Profile, Continued

Additional Resources

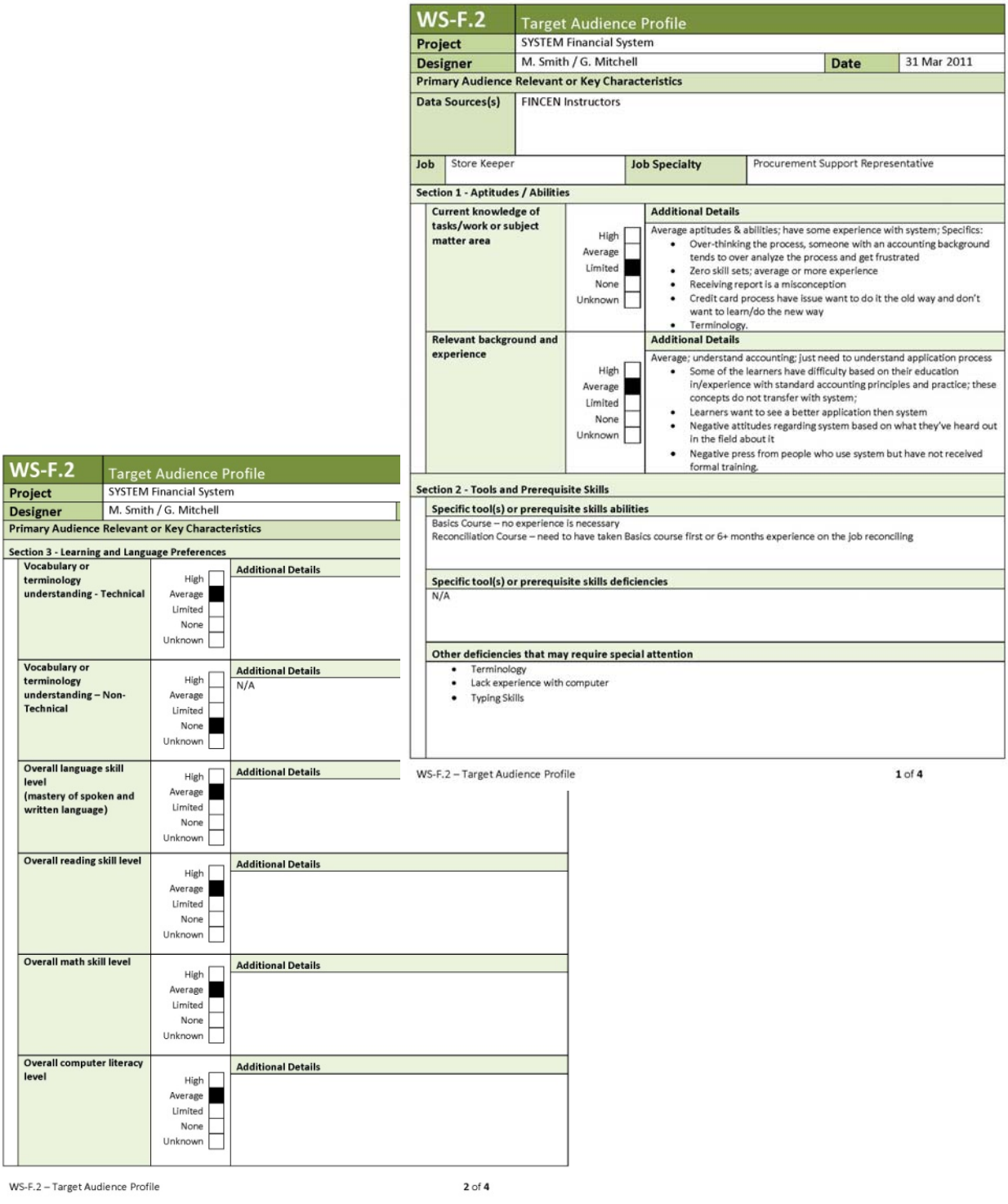
The following resources are available for developing the Target Audience profile:

- SABA Manual, *Volume 1 - Optimizing Human Performance* and *Volume 2 Training Design*
- *Making Instruction Work*, by Robert F. Mager – second Edition, Chapter 9 – Target Population Description
- *FKA Designing Instruction Workshop – Support Materials©,* Analysis, Population Factors, pages 45 – 47, Friesen, Kaye, and Associates, *http://www.FKA.com*

Note: *If you determine a need to complete an instructor analysis, contact your ISD professional, or a graduate of one of the approved curriculums listed in Chapter 3.1.*

Develop the Target Audience Profile, Continued

Example Below is an example of a target audience profile, WS-F.2.



WS-F.2	Target Audience Profile		
Project	SYSTEM Financial System		
Designer	M. Smith / G. Mitchell	Date	31 Mar 2011
Primary Audience Relevant or Key Characteristics			
Data Sources(s)	FINCEN Instructors		
Job	Store Keeper	Job Specialty	Procurement Support Representative

Section 1 - Aptitudes / Abilities

Current knowledge of tasks/work or subject matter area	High ☐ Average ☐ Limited ■ None ☐ Unknown ☐	Additional Details: Average aptitudes & abilities; have some experience with system; Specifics: • Over-thinking the process, someone with an accounting background tends to over analyze the process and get frustrated • Zero skill sets; average or more experience • Receiving report is a misconception • Credit card process have issue want to do it the old way and don't want to learn/do the new way • Terminology.
Relevant background and experience	High ■ Average ☐ Limited ☐ None ☐ Unknown ☐	Additional Details: Average; understand accounting; just need to understand application process • Some of the learners have difficulty based on their education in/experience with standard accounting principles and practice; these concepts do not transfer with system; • Learners want to see a better application then system • Negative attitudes regarding system based on what they've heard out in the field about it • Negative press from people who use system but have not received formal training.

Section 2 - Tools and Prerequisite Skills

Specific tool(s) or prerequisite skills abilities

Basics Course – no experience is necessary
Reconciliation Course – need to have taken Basics course first or 6+ months experience on the job reconciling

Specific tool(s) or prerequisite skills deficiencies

N/A

Other deficiencies that may require special attention

- Terminology
- Lack experience with computer
- Typing Skills

WS-F.2 – Target Audience Profile 1 of 4

WS-F.2	Target Audience Profile
Project	SYSTEM Financial System
Designer	M. Smith / G. Mitchell
Primary Audience Relevant or Key Characteristics	

Section 3 - Learning and Language Preferences

Vocabulary or terminology understanding - Technical	High ☐ Average ■ Limited ☐ None ☐ Unknown ☐	Additional Details:
Vocabulary or terminology understanding – Non-Technical	High ☐ Average ☐ Limited ☐ None ■ Unknown ☐	Additional Details: N/A
Overall language skill level (mastery of spoken and written language)	High ☐ Average ■ Limited ☐ None ☐ Unknown ☐	Additional Details:
Overall reading skill level	High ☐ Average ■ Limited ☐ None ☐ Unknown ☐	Additional Details:
Overall math skill level	High ☐ Average ■ Limited ☐ None ☐ Unknown ☐	Additional Details:
Overall computer literacy level	High ☐ Average ■ Limited ☐ None ☐ Unknown ☐	Additional Details:

WS-F.2 – Target Audience Profile 2 of 4

Develop the Target Audience Profile, Continued

Example, Continued

Below is the continued example from the previous page, of a target audience profile, WS-F.2.

WS-F.2	Target Audience Profile		
Project	SYSTEM Financial System		
Designer	M. Smith / G. Mitchell	Date	31 Mar 2011

Primary Audience Relevant or Key Characteristics

Other additional details

Mixed range of ages; warrant officers range from 30-40 years old; civilians range from 20-60 years old

Primary Audience Population Description

Section 6 – Summary of relevant or key characteristic for consideration during design & development

Mixed group of participants with some generational differences; Baby Boomers will want to have new skills and knowledge anchored to previous experiences; GenX prefer more tactical opportunities with short lectures followed by immediate applications.

Optional - Secondary Audience Population Description

Section 7: Summary of relevant or key characteristic for consid

N/A

WS-F.2 – Target Audience Profile

WS-F.2	Target Audience Profile		
Project	SYSTEM Financial System		
Designer	M. Smith / G. Mitchell	Date	31 Mar 2011

Primary Audience Relevant or Key Characteristics

Overall verbal communication and interpersonal skill level	High ☐ Average ■ Limited ☐ None ☐ Unknown ☐	**Additional Details**
Learning preferences or learning styles (if known) *(i.e. information or techniques that may cause a negative reaction)*	Most of the younger generation are tactical learners; they want to "do" immediately following instructor-led presentation/demonstrations. More seasoned generation (Baby Boomers / Xer's) tend to prefer one-on-one instruction	

Section 4 – Learner Attitude / Motivation

Attitude to organization	Eager ■ Neutral ☐ Resistant ☐ Unknown ☐	**Additional Details** General attitude of all four user populations is mixed; some learners fall into the eager category because they are learning something new and will have immediate use for it. Some are neutral because they won't get to use system immediately or its' just a means to meet a qual to advance.
Attitude to job	Eager ☐ Neutral ☐ Resistant ■ Unknown ☐	**Additional Details** Out in the field the comments heard are "Why is the system so crappy?" Get a lot of comments about "if we can have better tools we could do a better job" when referring to system* *NOTE: comments are frequently made by individuals that have not had formal training in system
Attitude to training *(i.e. willingness to accept the content of the training)*	Eager ■ Neutral ☐ Resistant ☐ Unknown ☐	**Additional Details** Mixed – from eager to resistant; • Eager – use system right away, have to learn it for their jobs, it is new and fresh, want to refine their skills in system if already using it • Neutral – individuals never say a word in class, just sit through program with little active participation • Resistant – feels like they already know it; don't want to be there for training but are required to be.

Section 5 – Additional Audience Details

Overall length of time with the organization	New ☐ 2-3 Years ☐ 4+ Years ☐ Mixed ■	**Other cultural or heritage issues that may require special attention** Mixed group, length of time varies		
Majority age range of audience	18-24 ☐ 25-30 ☐ 31-35 ☐ 36+ ☐ Mixed ■	**In general, gender distribution**	**% Male**	65
			% Female	35
		In general, distribution between types of units	**% Afloat**	25
			% Ashore	75
		In general, distribution of students attending directly from boot camp		0

WS-F.2 – Target Audience Profile **3** of **4**

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3.4 – Course Parameters and Constraints

Introduction

Overview

In Chapter 2 on Project Management, you were introduced to the concept of parameters and constraints. Both of these factors were identified at the project level and in some cases, may have even touched on those that are specific to delivering the resident training program. As a reminder, we define these facts as below:

- **Constraint** – Any limitation on the availability of time, money, method, equipment, or human resources affecting a project; these could change over the life of the project
- **Parameter** – A given, or a constraint which usually will not or cannot change over the life of the project

Purpose

For gathering this information you will specifically focus on discovering any parameter or constraint that defines the boundaries you must operate within for the design, development, testing, evaluation or delivery of the resident training program (i.e. the course).

Inputs

In order to determine the specific course parameters and constraints for your project, you will need to have access to the following types of information:

- Results from the task analysis
- Target audience profile
- Access to schoolhouse management who will be responsible for the delivery of your instructional product
- POAM and access to the Project Manager or other stakeholders, as needed
- Access to the client or sponsor for the project

Introduction, Continued

Outputs

The output of this task is a detailed listing of the actual boundaries and limitations that may impact your instructional product. The parameters and constraints will be grouped into the following four categories and will answer questions such:

- General
  - Has the student-to-instructor ratio been predefined? If yes, can it be changed?
  - Is the length of the course predefined? If yes, can it be changed?
- Delivery
  - Is there a significant range in entry skill/knowledge or relevant work experience?
  - Are there regulations or safety issues that prevent or confine “real world” simulation? What are they?
- Design and Development
  - Are there good reasons why some teaching methods should not be utilized?
  - Is there budget or other limitations that severely limit or prevent some possible design strategies (such as lack of access to professional audio-visual designers)?
- Testing and Evaluating
  - Will students be available to test the job aids and other training material?

    Note: *This type of testing occurs during the Development phase is referred to as developmental testing.*
  - Is formal certification required?

This type of data will be used to guide the rest of the decisions you will make throughout the remainder of the ADDIE process for your instructional product.

Note: *See the associated Course Parameters and Constraints worksheets in Appendix F for a complete list of the types of questions to be answered in each of the four categories.*

Determine Course Parameters and Constraints

Overview

During this activity, you will specifically focus on discovering any parameters/constraints that will define the boundaries and/or limitations you must operate within for all aspects of this resident instruction project.

Using the worksheets in *Appendix F* and the job aid in *Appendix E*, follow the steps for determining the course parameters and constraints, as summarized below.

Steps

The following steps describe the process you will follow to determine the parameters and constraints for your ISD project:

Step 1: Review all completed analysis worksheets, the POAM, and any additional notes on the ISD project. Look for any given restrictions or limitations that could influence the design, development, delivery, or testing/evaluating of the resident training program.

Step 2: Using the Course Parameters and Constraints worksheets, enter the results from your review of existing project and analysis extant data into the appropriate category (general, delivery, design/development or testing/evaluating). Identify data that may be missing or needs additional detail.

Step 3: Use the results from step 2 to prepare for interview sessions with the appropriate individual(s) for collecting and validating all the indentified course parameters and constraints.

Step 4: Conduct interviews to collect, and confirm all course parameters and constraints; record the results in the corresponding categories on the same worksheets completed in step 2.

Step 5: Evaluate the implication and impact of the identified course parameters and constraints, and review with the project manager and project stakeholders. Based on identified impact, work with project team to adjust the POAM and schedule as needed. Obtain concurrence on adjusted ISD strategy before moving to the Design phase.

Determine Course Parameters and Constraints, Continued

Additional Resources

The following resources are available to help you in determining the general parameters and constraints for an instructional program:

- SABA Manual, *Volume 2 Training Design*

Example

Below are two pages (of an eight page example provided in *Appendix G*) depicting the results from determining course parameters and constraints, *WS-F.3*.

WS-F.3.B	Course Parameter and Constraints: Part B - Delivery		
Project	SK "A" School		
Designer	M. Smith / G. Mitchell	**Date**	12 Mar 2011

1. **Has the duration of the training been pre-specified/defined? If yes, will the course timeline be sufficient?**	No ☐ Yes ■ Unknown ☐	**Comments**: Based on current design for the complete re-write, the existing 8 weeks is sufficient; however this should be identified in Part C of this worksheet a s a possible constraint if additional time is required; the process for requesting additional time is documented in SOP Vol. 6 – Curriculum Outline
2. **Are instructional methods pre-specified / defined?** (i.e. blended delivery method could not be utilized?)	No ☐ Yes ■ Unknown ☐	**Comments**: No time has been included in the POAM for any other instructional methods; only leader led is going to be considered at this time.
3. **Are delivery funds available to support other delivery methods?**	No ☐ Yes ☐ Not Req ■	**Comments**
4. **Is the Instructor / student ratio (I:S) pre-specified/defined?**	No ■ Yes ☐ Unknown ☐	**Comments**
5. **Will there be trained instructors available to teach?**	No ☐ Yes ■ Unknown ☐	**Comments**
6. **Is there sufficient and suitable classroom space?**	No ☐ Yes ■ Unknown ☐	**Comments**
7. **Are Lab facilities relevant to job/specialty available for training**	No ☐ Yes ■ Not Req ☐	**Comments**
8. **Are any other facilities, such as a wet room, equipment storage room available for training?**	No ☐ Yes ☐ Not Req ■	**Comments**

WS-F.3.B – Course Parameters and Constraints: Part B - Delivery

WS-F.3.C	Course Parameter and Constraints: Part C – Design/Develop		
Project	SK "A" School		
Designer	M. Smith / G. Mitchell	**Date**	12 Mar 2011

1. **Must accommodate wide-range of entry skills/knowledge?**	No ■ Yes ☐	**Comments**
2. **Must-live-within the pre-specified teaching methods (activity and/or media)?**	No ■ Yes ☐	**Comments**
3. **High levels of simulation are not practical.**	No ■ Yes ☐	**Comments**: This is not an issue; a mock warehouse exists as does a real inventory supply with the ET School; all needed software databases have existing training data bases, so real-world simulation is possible. There is no simulator required.
4. **Budget possibly too low to accommodate some required design?**	No ■ Yes ☐	**Comments**: Although there are some budget issues, it is not believed to be a factor for the current plans for design and development of the courseware; there is limited funds for travel to collect data, but again this work is also performed at the training center and both APs and SMEs are available locally.
5. **Student-Instructor ratio probably too great.**	No ■ Yes ☐	**Comments**: Not expected to change from existing Curriculum Outline ratio but there may be some individual lessons changes in current ratio allocations; but it is not expected to exceed total available instructor billets.
6. **Student unavailability must be accommodated.**	No ■ Yes ☐	**Comments**: Other than normal time already allocated for indoc and out-doc; at no time are the students unavailable to attend class.
7. **Remediation activities possibly prevented.**	No ■ Yes ☐	**Comments**
8. **Length of training pre-specified?**	No ■ Yes ☐	**Comments**: However if the new design anticipates the course will exceed the existing 8 weeks, this could become an issue. Approval of course length change is documents in SOP, Vol. 6 (Curriculum Outline)...will need to be sure to check if this needs to be addressed.

WS-F.3.C – Course Parameters and Constraints: Part C – Design/Develop **1** of **2**

Chapter 4

DESIGN PHASE

Table of Contents

4.1 – Chapter Introduction

Phase Overview

Synopsis

The second phase in the Instructional Systems Design (ISD) model, or A***D***DIE, is Design.

In the Design phase, the primary concern is to ensure the training we design is valid, reliable, and high-fidelity to the graduate's job. That concern is what the Design phase work is mostly about:

- Writing terminal performance objectives (TPO) that accurately portray the performance, conditions, and standards that students can complete for a task prior to graduating from a course.
- Choosing instructional activities and materials that have the greatest potential for developing task proficiency (validity and reliability) and ensuring transfer of the task proficiency to on-the-job performance (high-fidelity).
- Sketching, outlining, mapping, and blueprinting the instructor or student's use of those methods, strategies, activities, and training aids to promote optimum development of task proficiency and transfer of the task proficiency to on-the-job performance – creating your course "blueprint."

***Note**: Remember, although, course design and development is often portrayed consecutively as one phase then another. It isn't linear in process. Many development efforts may be ongoing or initiated while the developer is still in the Design phase.*

Phase Overview, Continued

Audience

Primary Audience: Coast Guard (CG) Training Center active duty course developers and instructional designers, as well as CG civilian course developers and instructional systems specialists.

Secondary Audience: CG Training Center Performance Systems branch managers supporting the instructional designers/course developers; the subject matter specialist, the project lead, project manager, school chief and/or others who have been identified as having some role in the ISD process. Additionally, the secondary audience may include instructional designers employed with contracted companies performing instructional design for the CG, or equivalent individuals who have curriculum/course development responsibilities, including instructors performing course maintenance with ISD oversight.

Note: *Due to the varying quality and types of data input sources, the requirement for comprehensive and accurate data, as well as the range of data details and considerations required when making instructional decisions, you may be advised throughout the chapter to consult with an ISD professional, or graduate of one of the following approved curriculums:*

- *Coast Guard Course Designer Course (CDC)*
- *SABA Knowledge Service Peak Performance System (previously known as Accomplishment-Based Curriculum Development, or ABCD) workshops) taught by staff at TRACEN Petaluma, TRACEN Yorktown and ATTC Elizabeth City.*

Purpose

The Design chapter of this SOP is composed of sections that are to be completed sequentially. Each section and its associated tasks (for development of that specific deliverable) will direct instructional developers to a specific job aid for detailed guidance on how to perform the task. Each section will provide guidance on the design of materials to support activities common to resident instruction.

The material in this chapter expands on the information that graduates of the Coast Guard's Course Developer Course (CDC) are taught. Much of it is the same; however, it has been expanded. Since technology will continue to supersede current methods and offer exciting possibilities to course developers, this chapter of the SOP has been crafted so it will provide the essentials you not only need today, but also position you to take advantage of tomorrow's design methodologies.

Phase Overview, Continued

Design Phase Deliverables

The outputs of the design phase are the plans you, the course developer, uses to create the instructional materials.

The key outputs of the Design phase are:

- Terminal Performance Objectives (TPOs)
- Evaluation criteria
- Lesson design plans
- Course blueprint (grouped tasks and sequenced objectives)

Validity and Reliability

In order for course developers to obtain valid and reliable instructional materials, these fundamental themes must be kept in mind while designing courses. You will know you are ready to move out of the Design phase and start developing instructional materials when:

- The TPO accurately portrays the performance, conditions, and standards that students will be able to complete for a task prior to graduating from a course, and the TPO is as close as possible to the task performance, conditions, and standards expected of the graduate on the job.
- The evaluation criteria shows the same criteria as stated in the objective.
- The selection of instructional activities is appropriate in light of the objective and the target audience profile.
- In general, the description of the instructional activities is detailed enough so that a developer could use the description to produce the actual instructional materials.
- The course blueprint shows the grouping and sequencing of units, lessons, and activities.

Phase Overview, Continued

Project Management

At this point in your project, it's a good time to verify the initial project schedule/timeline you proposed. Using the data collected, you can provide a more accurate estimate of time needed for Design and Development. A helpful tool to do this is using a worksheet for calculating Developmental Hours (*see Tip-L.1*).

Course Hierarchy

The table below shows the relationships for the levels you'll be working with during Design:

Element	Hierarchy
STEPS or SUB-STEPS to performing a particular TASK	TOPIC
TASK	TPO
1 or more TPOs	LESSON
1 or more LESSONS	UNIT[1]
1 or more UNITS	COURSE

[1] **NOTE:** For the sake of sequencing and grouping, you may need to add another level between Unit and Lesson.

Phase Overview, Continued

Process Overview

The key events in the Design phase of the course are outlined below. Note that we list these events in a sequence to serve as an aid to understanding the process. Recall the note that ADDIE is presented in a linear manner, but in effect many phase events are worked on simultaneously. In the second event shown in the table below, one such overlap between the Design and Development phase is addressed.

Event	Action
1.	Write a performance objective (PO) for each task.
2.	Determine evaluation criteria for each task. • Development phase tasks that may logically follow this event include developing Performance Tests (Chapter 5.3) and Job Aids (Chapter 5.2) – even if job aids are written initially at task level then revised as instructional objectives are finalized.
3.	Create a course blueprint.
4.	Select the instructional methods and strategies for each learning activity: • Detect potential learning problems • Select media for each activity • Determine content delivery method
5.	Design instructional materials for each lesson which consist of: • Introduction • Content Delivery • Demonstration • Practice and Feedback • Assessment • Summary and Review
6.	Sequence activities within each lesson.

A best practice for course developers at the end of Design would be to create a prototype of one lesson/unit as a snapshot of the final product for the stakeholders.

	OPTIONAL: Produce a prototype of one lesson/unit of instructional materials to include (as appropriate): • Advance assignments (i.e. "homework") • Glossary • FAQ's and answers • Handouts • Performance test • Instructional media • Training aids • Student guide • Instructor guide

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4.2 – Terminal Performance Objectives

Introduction

Overview

Writing the terminal performance objective is the first step in the Design phase. Up until now, you gathered the task list and task performance details that outlined how a task is completed on-the-job; now that you are in the Design phase of ISD, you are writing how these tasks will be evaluated in an instructional setting which will assist in the later development of your TPOs.

In this volume of the SOP the Coast Guard wants the designer to go to great lengths to spell out what those standard tools are, which Commandant Instructions apply, and to actually determine the host of other tasks that determine the differences between acceptable and unacceptable job performance.

The two types of performance objectives are: terminal performance objectives (TPOs) and enabling objectives (EOs).

- **Terminal Performance Objectives** describe the task students will be required to do upon completion of the instruction and in order to graduate from the course, thus the word “terminal.”
- **Enabling Objectives** describe a physical or thinking (*i.e.*, discrimination or generalization) skill that describes in measurable and observable terms a necessary step to accomplish the related TPO.

The Coast Guard uses TPOs as the basic building block of a training program to ensure instruction and training are performance-based. You will use the task list and task performance details gathered during Analysis to develop TPOs for the course. You gain several benefits from writing performance objectives:

- Clear expectations of final performance for students, instructors, and stakeholders.
- A base from which to develop the evaluation criteria for the performance test
- Instructional activities and materials are designed and ready to be developed

Introduction, Continued

Purpose

The purpose of TPOs is to describe as precisely as possible the real world job performance expected of the graduate. They also serve to tell students what they need to perform (under what conditions and to what standard) to graduate from the course. They are the single most important facet of the Design phase as they will direct and guide the course developer in developing instructional materials for the course.

In the Coast Guard Training System, performance objectives serve the following purposes:

- Provide a basis for test item development
- Support selection of instructional strategies
- Structure events and activities to enable learning and skill acquisition
- Support selection of training methods and media
- Support sequencing of training
- Compel and direct attention to important content
- Communicate performance standards
- Provide a basis for measuring and evaluating student performance

Inputs

The following information is needed before entry into development of performance objectives:

- Task listing or RPQs
- Task details from the Analysis phase
- Design, development, and delivery constraints and parameters

Outputs

The outputs of this task are performance objectives which become the foundation of the training program (and framework for the curriculum outline). They help convert real world job performance into useful and transferable training—both for the instructor and the student.

How to Write Terminal Performance Objectives

Overview

The Analysis phase of the effort determined that there are tasks that have to be performed in the Coast Guard and there are students who can't yet do them. At this point, instructional designers should have enough understanding to be able to:

- Help the course developer in designing and developing the instruction
- Describe to program managers and training managers what will be trained and to what level of fidelity the students will be trained
- Describe to instructors what they need to test and to what standard, and under what conditions
- Describe to students where they should focus their efforts to pass the class

Steps

The process for writing TPOs has been summarized in the steps below. Additionally, a Job Aid has been included in *Appendix I* showing the specific steps in much greater detail, and *Appendix J* provides a worksheet (WS-J.1) to assist in drafting your TPO.

Step 1: Collect task list

IF	THEN
Task list has been provided	Go to Step 2.
No task list has been provided	Consult your ISD professional, as a task list (analysis) needs to be conducted.

Step 2: Ensure tasks are written in precise, observable actions that will produce the output required on the job.

***Note**: When writing your TPO, sometimes you may need to modify the performance word (i.e. verb) provided in the task list to more accurately reflect the action under which the students perform the task in an instructional setting.*

Step 3: List the conditions by which the performance must be completed.

Step 4: List the standards under which the performance will be completed.

Step 5: Compile all three elements and draft your TPO, starting with the conditions statement.

How to Write Performance Objectives, Continued

Example

The TPO development example below depicts all the essential performance, conditions, and standards:

WS-J.1	Terminal Performance Objective(s)		
Project	ET-A		
Designer	B. Wikle / ET1 Chang	**Date**	10/5/2011
Task Number	B.4.2	**Objective Number**	TBD
RPQ *(if applicable)*	4.C.04 **DEMONSTRATE** Lock-Out/Tag-Out procedures for electronics/electrical equipment for maintenance and/or repair IAW the Electronics Manual, COMDTINST M10550.25 (series), Ordnance Manual, COMDTINST M8000.2 (series) and Equipment Tag-Out Procedures, COMDTINST 9077.1 (series). **Sup Guide:** The technician must demonstrate the proper procedure for determining the need to tag-out and tag-in equipment or circuits and properly tag-out/tag-in as required. The technician must complete the process observing all safety and procedural requirements.		
Conditions *Cue that signal the performer to act / Stimulus* *Tools and equipment needed:* *References, job aids, and assistance needed:* *Physical Environment*	Conditions/Stimulus: • Scheduled planned maintenance • Abnormal system operation • Tagged-out equipment (Caution tag, Danger tag) Job Aids/References: • Electronics Manual, COMDTINST M1055025 (series) • Ordnance Manual, COMDTINST M8000.2 (series) • Equipment Tag-Out Procedures, COMDTINST 9077.1 (series) Work Equipment: • Caution Tags • Danger Tags • Tag out log Physical environment: • Locked space, cool temperature, hands & eyes occupied • Electrical shock • Performing daily with hazardous consequences		
Performance	**CLEAR** a caution / danger tag		
Standards *Time* *Accuracy* *Safety* *Security* *Process / Product*	100% accuracy as defined by: • Following the timeline of 10-15 minutes • Following all safety standards • Following the Tag out / lock out procedures per COMDTINST M10550.25B • Observing all safety and procedural requirements • Avoiding grounds and shorts • Equipment de-energized and unplugged		
TPO Statement	Given a locked-out / tagged (de-energized and unplugged) piece of equipment due to scheduled planned maintenance or abnormal system operation, properly CLEAR a caution/danger tag using appropriate equipment within 10-15 minutes while maintaining awareness of electrical shock and observing all safety and procedural requirements IAW the Electronics Manual, COMDTINS M10550.25 (series), Ordnance Manual, COMDTINST M8000.2 (series), Equipment Tag-Out Procedures, COMDTINST 9077.1 (series) and Job Aid(s).		

4.3 – Evaluation Criteria

Introduction

Overview

Where TPOs specify the goals that students need to strive towards, the evaluation criteria provide the boundaries or parameters inside which their performance is measured. Providing these parameters are the first two critical steps before moving forward with your course design.

Determining the evaluation criteria is a simple but extremely important step, because the evaluation criteria will be used by the developer to create the parameters for the performance test.

Criterion-Referenced Testing

"Tests" in Coast Guard resident instruction should always be *criterion-referenced*. That means the test should determine whether or not a student can meet a job-related standard without regard to the performance of the other students. The purpose of criterion tests is to determine whether the student can meet the performance expectations stated in the TPO.

For example, let's say a student's job will require him or her to file personnel documentation with 100 percent accuracy. To receive a *GO* on a performance test for this requirement, a student would have to file personnel documentation to Coast Guard standards each time. Anything less would receive a *NO GO*.

Why? Because the job standard requires 100 percent accuracy, and students must meet that criterion in order to be successful on the job.

Introduction, Continued

Purpose

The evaluation criteria of a performance test tells the real story of whether task proficiency was achieved and the student is ready for transfer that performance to the job in the operational Coast Guard.

The most obvious time for determining the evaluation criteria for a performance test is immediately after you have written the conditions and standards of your TPO. Evaluation criteria are used to measure and evaluate a student's proficiency to perform a task. Evaluation criteria are usually in a checklist format and include:

- Product evaluation
- Procedure evaluation

In the *product evaluation*, the evaluator uses a product checklist to rate the extent to which each key product characteristic meets specified acceptability standards or criteria.

The *procedure evaluation* checklist corresponds with the key steps, actions, or activities of the task as well as the applied knowledge and skill elements required for completely successful performance. During the performance test, an evaluator observes a student's step-by-step performance of the task. The evaluator rates each key step in the procedure against specified *GO* or *NO GO* criteria.

All Coast Guard performance tests must evaluate the quality of the output of the task performance. Many Coast Guard performance tests also evaluate the execution of the task procedure.

***Note**: The complete development of the performance test will be conducted as part of Development, but the front-matter (determining the evaluation criteria) is critical as part of design.*

If you have a poorly written TPO, this is when you realize it. If your standards for your TPO say "IAW Commandant Instructions," now is the time to go back and redefine what those specific, observable standards really are. This is why it is so important to determine your evaluation criteria immediately after you write your TPOs.

Introduction, Continued

Inputs

The following information is needed before you can begin the development of evaluation criteria:

- TPOs
- Task details (from the Analysis phase)
- Design, development, and delivery constraints and parameters analysis (from the Analysis phase)

Outputs

The output of this task is:

- Specific evaluation criteria (which can be inserted into the top portion of Performance Test Checklists)

How to Select Evaluation Criteria

Steps

The process for selecting evaluation criteria has been summarized in the steps below. Additionally, a Job Aid has been included in *Appendix I* which shows the specific steps in much greater detail, and *Appendix J* provides a worksheet (WS-J.2) to assist in capturing your decisions.

The basic steps for selecting evaluation criteria are:

Step 1: Ensure task details data and any parameters and constraints from Analysis match the conditions and standards written into the TPO (*starts at Step 11 in the job aid*).

Step 2: Modify the TPO as necessary based on requirements for task proficiency.

Step 3: Identify the criteria that are key in determining task proficiency, then describe those criteria.

How to Select Evaluation Criteria, Continued

Example

Below is an example of the data used from Analysis to select appropriate evaluation criteria that will then be used in the development of your Performance Test Checklists.

WS-J.2	Evaluation Criteria Selection Worksheet		
Project	ET "C" AN/SPS-50 Radar Maintenance		
Designer	W. Simington	Date	07/24/2012
Terminal Performance Objective		**TPO Number**	E.4
Given a Work order with a report of malfunctioning AN SPS-50 radar MPC G21012.0, all tools, equipment, and supplies required by the MPC **Replace** the pedestal following all safety procedures with no damage to the equipment and no operational parts replaced.			
Testing Parameters / Constraints (Conditions)	All tools and equipment as listed on the current MPC G21012.0.		
Standards NOT required for Task Proficiency	Time and rate of production not applicable to this task.		
Modifications to TPO (if applicable)			
none			
Student may use the following	Job Aid: √	Reference Materials: √	Other *(list)*
Evaluation Criteria *(correct performance will be based on this)*	Product Only:	Process and Product: ☑	
Accuracy *(list criteria as applicable)*	Malfunctioning component identified and replaced. No operational component replaced.		
Time *(list criteria as applicable)*	N/A		
Safety *(list criteria as applicable)*	All electronics safety procedures must be followed.		
Rate of Production *(list criteria as applicable)*	N/A		
Other Criteria: _____			

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4.4 – Course Blueprint (Grouping and Sequencing)

Introduction

Overview

Once you have set the parameters from which your desired performance will occur (bound by your performance objectives and evaluation criteria), you can begin mapping out and designing the blueprint of your course. This is the next logical step because you need to identify from the task grouping that occurred in Analysis, what the foundational pieces of your course are, then what builds on the foundation, and so forth. This task of grouping and sequencing objectives creates your *course blueprint*.

Essentially, for resident course designers, creating a course blueprint means grouping training into course units or lessons, and then to determine the proper sequence for those units and lessons. A course blueprint provides the recommended course, unit, and lesson order for delivery of training that will result in optimum task proficiency for students.

Purpose

The purpose of this step is to put all of the components together into a logical design that instructors and students can easily follow and that the developer can use to develop course materials. Grouping (structure) is important because it provides a framework for learning: structured information helps you learn more quickly and allows you to remember what you have learned more efficiently. Grouping of tasks will have been provided to you as an output from the Analysis phase, or from the major outputs / major accomplishments in the front end analysis (FEA), or other analysis, provided to you.

Sequencing (order) is important because it impacts whether learning does or does not take place, and because learners cannot process and learn new information or skills unless they have previously learned the prerequisite physical and cognitive skills upon which the new tasks depend.

Introduction, Continued

Inputs

The following information is needed before you can begin grouping and sequencing tasks:

- Job and Task Inventory (from FEA/analysis)
- Terminal Performance Objectives
- Evaluation Criteria

Outputs

This task is critical to developing the appropriate instruction. Forming units of instruction typically produces an ordered list of terminal performance objectives that can be incorporated into the curriculum outline and course-level plan of instruction. A course map or flow diagram illustrates the relationships between units of instruction, instructional activities, and the evaluation strategy. The outputs you will receive from performing this task are:

- Appropriate course structure (e.g. skills, steps, task-centered, problem-solving, etc.).
- Properly sequenced objectives (i.e. the order in which objectives will be trained enhances and promotes task proficiency and the transfer of task proficiency).
- Course design plan that shows developers, instructors, and students how the student needs to proceed through the course.

How to Group and Sequence Objectives

Grouping Strategies

The purpose of grouping, or clustering, objectives is to organize training by units, lessons, or topics of instruction. Grouping of objectives provides a logical and meaningful structure for training. The following guidelines are provided:

- *Group prerequisite knowledge and skills into a core unit of instruction.* For example, basic electronic safety precautions common to a number of performance objectives for Electronics Technicians may be grouped in a common core training unit for all ratings requiring prerequisite knowledge of electronic safety precautions.
- *Group performance objectives that relate to a common system or require the same type of action.* For example, the tasks of reconciling different types of financial accounts with the same finance and procurement desktop application may be grouped into a single unit of instruction.
- *Group common knowledge and skills.* Some tasks, such as troubleshooting a computer problem, require core knowledge and skills which are transferable between systems or across functional areas.
- To construct an efficient structure for learning, *group performance objectives by learning type and level.* For example, group prerequisite or common objectives for efficient delivery of information by advance assignment.

Sequencing Strategies

Good instructional design sequences objectives within courses for safe, efficient, and effective instruction. When sequencing instruction, first seek to minimize safety risks. For example, in a boat coxswain course, avoid scheduling rescue swimmer events immediately after an all-night piloting exercise. When organizing instruction, you can apply single- or multiple-sequencing strategies.

Strategies for sequencing instruction include:

- Job performance order
- Chronological order
- Known to unknown
- Unknown to known
- Simple to complex
- Complex to simple
- Cause and effect order
- Critical order

How to Group and Sequence Objectives, Continued

Steps

The process for grouping and sequencing objectives has been summarized in the steps below. Additionally, a Job Aid has been included in *Appendix I* which shows the specific steps in much greater detail, and *Appendix J* provides a worksheet (WS-J.3.A) to assist in creating your course blueprint

Step 1: Group tasks (if not done in Analysis).

Step 2: List the foundational or introductory tasks.

***Note**: These sub-steps may be necessary when excessive pre-requisites or foundational skills / knowledge are identified for course – see Appendix K, for examples.*

a. Group any clusters of prerequisite knowledge and skills into a core unit of instruction.

***Prerequisites** are those skills or knowledge that a student's needs to know in order to begin practice of particular tasks*.

b. Group performance objectives that relate to a common system or require the same type of action.

c. Group common foundational skills and knowledge.

***Foundational** tasks are those skills are knowledge at the TASK-level (may be PO's themselves) that support the delivery of the curriculum at the course, unit or lesson level.*

Step 3: List the task groupings that logically follow in sequence following the foundational tasks.

Step 4: Once the tasks that follow a sequence have been identified, list those remaining tasks in logical order (*i.e. by TPOs that relate to a common system or require the same type of action, or common knowledge and skills*).

How to Group and Sequence Objectives, Continued

Example 1

Below is an example of a course blueprint from which you can develop a course map for visual representation of the curriculum.

WS-J.3.A	Design Worksheet – Course Blueprint		
Project	Bridgemaster E Radar		
Designer	ET1 Richey / ETC Odom	**Date**	03 Jan 2011
Course			
ET-C School: Bridgemaster E Radar			
	Unit	**Rationale**	
Final Culminating Event/Unit	☐ Capstone ☐ Multi-lesson scenario / Integrated Assessment Other / Describe: *NONE*	*No final or capstone event for this course.*	
Sequencing of Units (or *Chunks*)	*Repair Display Unit on BridgeMaster E Radar system.* *Repair the Scanner Unit on BridgeMaster E Radar system.* *Repair Ancillary Equipment for BridgeMaster E Radar system.* *Perform Preventative Maintenance on the BridgeMaster E Radar system.* *Utilize the support structure for the BridgeMaster E Radar system.*	☐ Simple to Complex or vice versa ☐ Known to unknown (building on pre-requisites) ☐ TPO's related to common systems ☐ TPO's with like performance ☐ Common knowledge and skills ☐ Job performance order ☐ Cause and effect order ✔ Other / Describe: *In analysis, it was determined that PM tasks will build on Repair tasks. Within Repair, "display" needs to be taught first, because display unit is key to fixing other radar problems.* *The final task, utilizing support structure makes for a nice "retention and transfer" module because it directs students where to go if additional assistance is required.*	
Foundational tasks / units ***Foundational** tasks are those skills are knowledge at the TASK-level (may be TPO's themselves) that support the delivery of the curriculum at the course, unit or lesson level.*	*Operate BridgeMaster E Radar System.* *Initialize the BridgeMaster E Radar System.*	*Successful execution of every higher level task requires the student to effectively distinguish between operator error and equipment failure.* *Initializing radar is most common task, and makes sense to be grouped with basic operation of the radar.*	
Prerequisites ***Prerequisites** are those skills or knowledge that a student's needs to know in order to begin practice of particular tasks.*	*BME Platforms* *System Components* *Platform Configurations*	*These introductory topics are required for students to have basic nomenclature and safety procedures prior to moving on in the course.*	

How to Group and Sequence Objectives, Continued

Example 2

Below is an example of a unit blueprint from which you can develop a unit map for visual representation of the curriculum (see the *IT-A: Premise* unit map that follows).

WS-J.3.B	Design Worksheet – Unit Blueprint		
Project	IT-A		
Designer	ITC Jackson / Pfeifer / Janes / Fluitt	**Date**	03 Jan 2011
Course	IT-A School	**Unit**	Premise

	Task	Rationale
Final Culminating Event/Unit	☒ Capstone ☐ Multi-lesson scenario / Integrated Assessment Other / Describe: Cable Install Project Main Troubleshooting Final Exercise	These lessons satisfy EPQ's 4.D.01 and 4.E.09.
Sequencing of Tasks / Lessons *(Order of Lesson Delivery)*	Recommended design order as follows: - Intra Bldg Backbone Cable - Horizontal Cable - Outside Plant - Cable Tracing - Shore Ties - Amphenol - Telecom Admin	☐ Simple to Complex or vice versa ☐ Known to unknown (building on pre-requisites) ☐ Job performance order ☐ Cause and effect order Other / Describe: Due to potential constraints (outdoor classes are weather dependent) , flexibility in sequencing can occur as follows: - Shore tie or Amphenol can occur before or after units: Intra, Horiz, Outside - Intra MUST come before Horizontal - Tele Admin can occur between Cable Tracing and Shore Ties - Outside Plant can be taught before Intra - Cable Tracing, Shore Ties and Amphenol are all interchangeable
Foundational Tasks ***Foundational** tasks are those skills are knowledge at the TASK-level (may be TPO's themselves) that support the delivery of the curriculum at the course, unit or lesson level.*	Cords Firestopping Grounding Pulling Standards	Firestopping must come before Grounding; other than that, all others are interchangeable.
Prerequisites ***Prerequisites** are those skills or knowledge that a student's needs to know in order to begin practice of particular tasks.*	Safety Tool Bag Standards / Codes Color Codes Binders	These blocks of instruction are all prerequisite to every other part of the unit.

Creating a Course Map

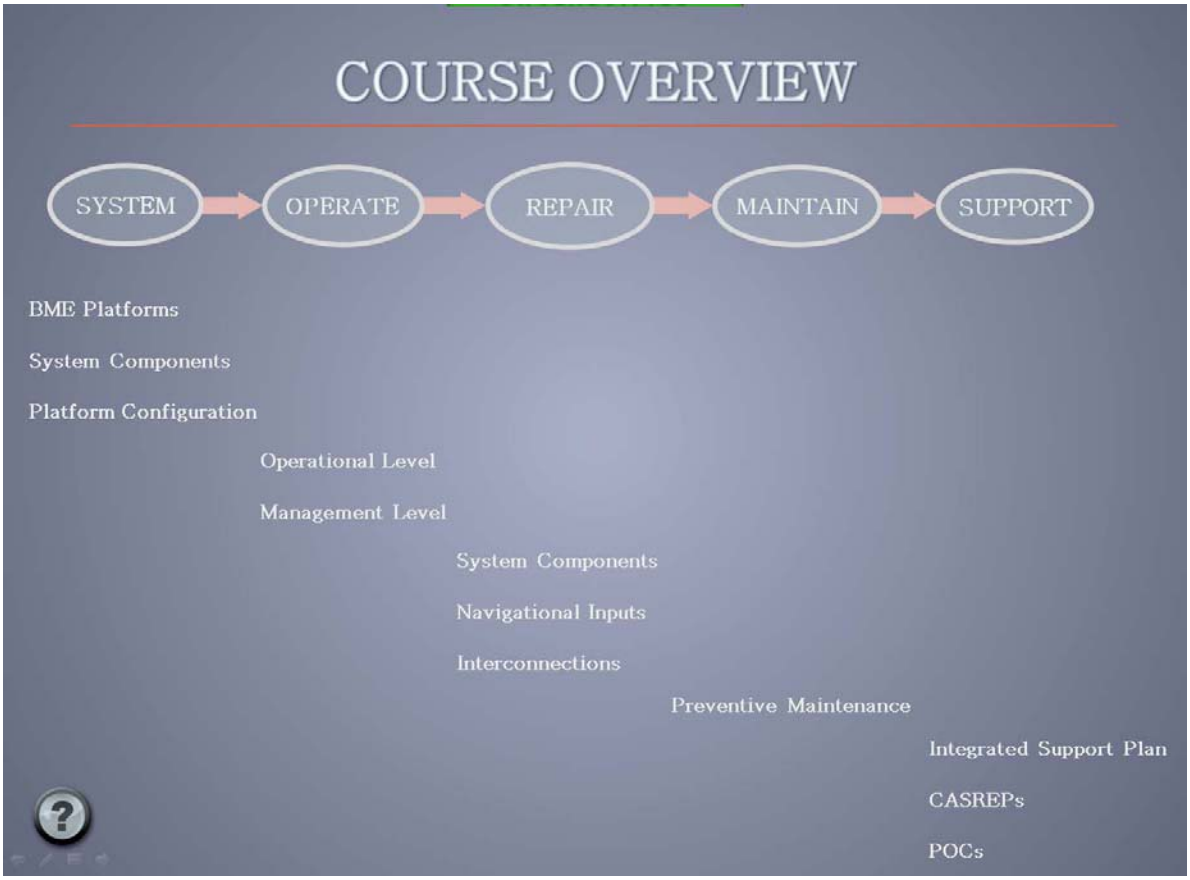
Course Map

Once you have the tasks and units group and sequenced, the next step is to produce a graphical representation of the course blueprint. They can be drawn for any number of instructional components including courses, units, and lessons. Course maps are important because they provide a visual element to the blueprint that allows training managers, school chiefs, and instructors a simplification of the course design. They also provide the basis for a course syllabus.

This SOP doesn't provide detailed guidance on how to create a course map from the course blueprint, but three examples are provided below to give developers a basic understanding of what they could look like at the course and unit level.

Example 1

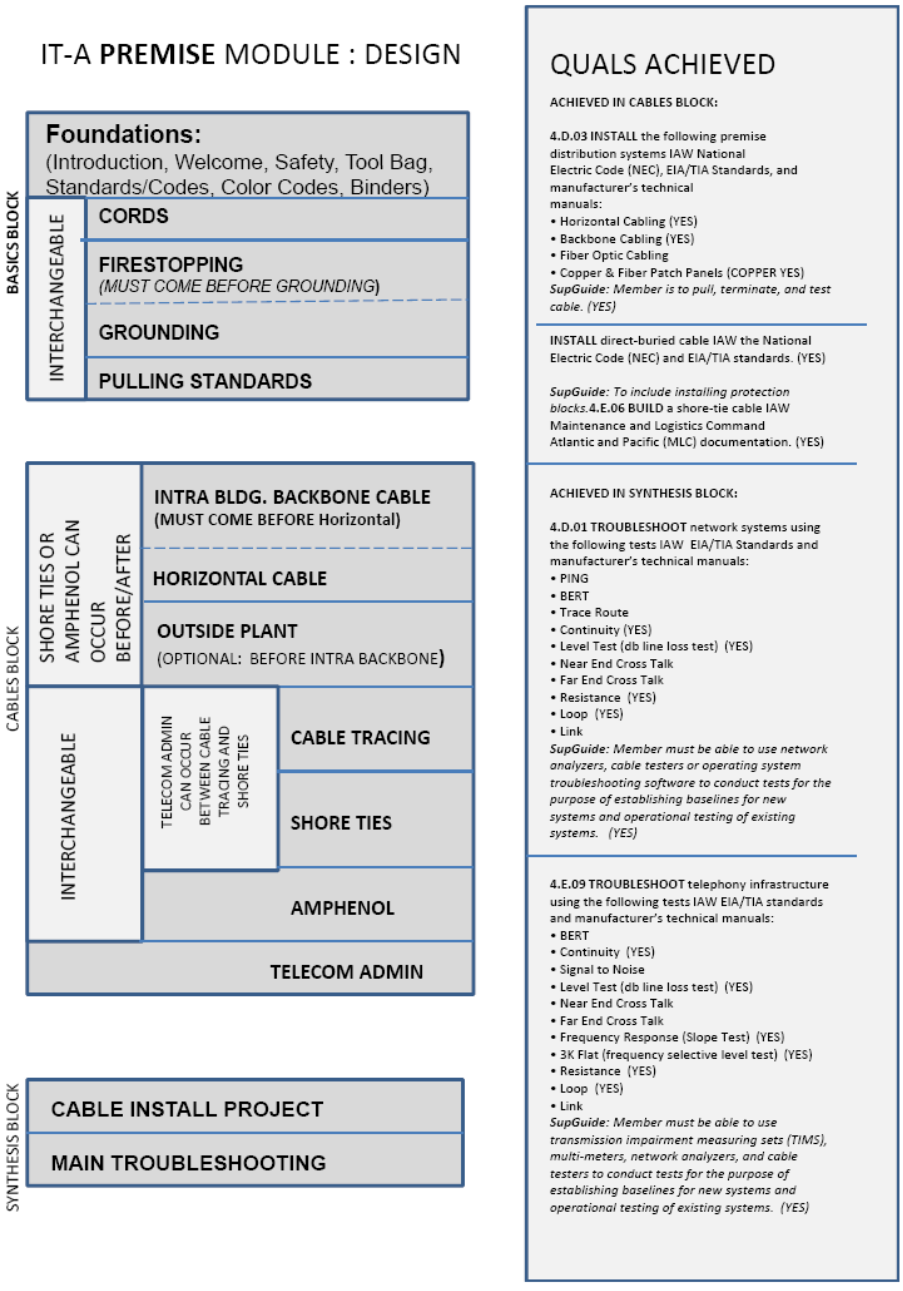
Following is an example of a course map that depicts the information shown in the previous course blueprint worksheet example from the ET-C: BridgeMaster E Radar course.



Creating a Course Map, Continued

Example 2

Following is an example of a unit map that depicts the information shown in the previous unit blueprint worksheet example from the IT-A School course.



Creating a Course Map, Continued

Example 3

Following is another example of a course map for ET-A School:

ET "A" School Course Map

5 days	22 days	47 days		14 days	25 days	11 days	10 days
ALDP	*Electronic Fundamentals**	*RF Principles*	*HF Transceiver (RT-9000)*	*VHF*	*SINS*	*Crypto*	*Soldering/ Connector*
	22 days (5/6/4/7)	*HF Receivers* 20 days (10/10)	27 days *82 TPOs*	14 days *47 TPOs*	*64 TPOs*	*31 TPOs*	*13 TPOs*
	Safety - Extinguish a Fire, Rescue an electric shock victim, test high voltage gloves, CPR *4 TPOs* Safety	Safety - Measure and Discharge *2 TPOs*		Safety Review	Safety Review	Safety Review	Safety Review
	Admin - Technical Manuals, EPQs (get signed off), Course Material Layout, Job Aids, PTs, SGs	Admin – DD-1149, Lock Out/Tag Out CMPlus *6 TPOs*		Admin –Man aloft chit, ALMIS *4 TPOs*	Admin -ALMIS	Admin	Admin
	Test Equip - FE1, FE2, FE4 *3 TPOs*	Test Equip - FE5 *1 TPO*	Test Equip - FE7, FE11 *2 TPOs*	Test Equip - FE8 – FE10 *3 TPOs*			
TPO TOTALS:	**7 TPOs**	**93 TPOs**		**54 TPOs**	**64 TPOs**	**31 TPOs**	**13 TPOs**

*Electronic Fundamentals include the necessary Pre-requisites tied to the TPO's (*previously within one of the following modules: AC, DC, Analog, Digital*)

TOTALS:
Days: 134 (-6 days) from current 140 days
TPOs: 262

ETA School Thursday, January 27, 2011

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4.5 – Lesson Design Plan

Introduction

Overview

An important task in the Design phase is to determine instructional activities and materials. In fact, you could say that all the tasks you've performed so far—identifying the target audience, conducting tasks analysis, writing performance objectives, and determining evaluation criteria set the foundation for this task. When you determine instructional activities and materials, you:

- Select appropriate activities for the kind of learning you want to take place (e.g. demonstration, case study, or practice).
- Sequence activities to help your students gain proficiency at performing the task as expected in the TPO.
- Select materials for delivering instruction.

Purpose

The purpose of determining the instructional activities and materials is to select those activities and materials that cause students to learn, retain, and apply what they need to gain proficiency in performing the tasks as expected. The right instructional activities and materials are those that effectively and efficiently lead to task proficiency and increase the likelihood of transfer to on-the-job performance.

Introduction, Continued

Inputs

The following information is needed before you can begin planning for instructional activities and materials:

- TPOs
- Evaluation criteria
- Task details
- Performance support decisions
- Target audience profile
- Parameters and constraints

Note: *At this phase, when you are deciding on instructional activities and necessary instruction materials, it is helpful to have your Performance Tests and Job Aids developed (as referenced earlier in this chapter).*

Outputs

The output of this section is a lesson design plan that includes:

- Brief descriptions of activities (instructional methods and strategies) that are recommended during each of the following activities throughout your lesson:
  - Introduction
  - Content delivery
  - Demonstration and examples
  - Practice activities and feedback
  - Assessment
  - Summary and review
- Media and material selection for delivering instruction
- Sequencing of instructional activities within a lesson

How to Create a Lesson Blueprint

Steps

There are seven steps to designing your lesson blueprint, described further on the following pages (JA – I.3.C: How to Create a Lesson Blueprint in *Appendix I* provides more details on each of these steps):

Step 1: Determine the levels of simulation.

Step 2: Select the instructional methods.

Step 3: Design an instructional strategy for teaching the task.

Step 4: Design the lesson introduction.

Step 5: Describe the content needed to support the practice / performance of task(s).

Step 6: Select the media.

Step 7: Determine student-instructor ratios.

Step 8: Sequence activities for a lesson.

Levels of Simulation

The first step is to determine the levels of simulation. The idea is to choose the highest level of simulation (that is practical within the parameters and constraints) that matches how the task is performed on the job.

After selecting the highest level, you will choose an appropriate first level of simulation. The first level of simulation should be as high as the students can handle without error.

If there is a wide range between the first and final levels of simulation, you will need to select one or more intermediate levels of simulation for student practice.

Learning Problems

If any learning problems are detected or suspected, consult with your supervisor or project manager for more detailed processes for handling them during your design.

How to Create a Lesson Blueprint, Continued

Instructional Methods

The second step is to select the primary instructional method or source of content delivery. This is how the students get new information about the task – such as names of parts, principles that affect performance of the task, safety or security issues, and especially how to perform the task.

Ideally, the primary method of instruction is self-instructional text of some kind (e.g. student guide, textbook, videos, or CBT) as a homework assignment. That way, the students arrive in class the following day at the discussion level of simulation, ready for a live demonstration of performance of the task, followed by practice and feedback at various levels of simulation. In such a situation, which should be the norm, the instructors are a secondary source of content delivery who reinforce important points as they give feedback during practice.

If a course will have a very small graduate population or will be short-lived, or changes to the procedures are imminent, then it makes sense for the instructors to be the primary source of content delivery. When in doubt, however, select self-instruction as the primary instructional method.

Instructional Strategy Design

The third step is to design an instructional strategy for teaching the task. The general methods of instruction are to present the content using the primary source of content from above (either self-instructional materials or lecture), demonstration, practice exercise, and then assessment (performance test).

Again, if learning problems exist, then contact your supervisor or project manager to determine additional methods of instruction tailored to the specific learning problem.

How to Create a Lesson Blueprint, Continued

Lesson Introduction Design

The fourth step is to design the introduction to the lesson. If the task is to be trained to memory, then see your supervisor or project manager to help you create an advanced organizer to help the students understand how they will learn the task. If the task is trained via job aids, then describe the value of learning the task, what the completed task product looks like, and how practice and testing will be conducted.

Designing the Content

The fifth step is to design the content for the lesson. This is where the content is presented either via self-instructional text (ideally as homework) or via lecture by instructors (avoid whenever possible). In the preparation, pre-requisite information (such as new terms and safety, security, or legal issues) is presented.

Selecting Media

The sixth step is to select the media for the lesson. If the task is trained via job aids, then obviously job aids are one medium. Depending on the parameters and constraints, you may also select CBT/WBT, paper-based information, graphics, video, or audio.

If you think special media (i.e. CBT, 3D Modeling, eLearning, etc.) may be needed, contact your supervisor to determine whether it is feasible.

How to Create a Lesson Blueprint, Continued

Determining Student-Instructor Ratios

The seventh step is to determine the student-instructor ratio for each instructional activity. It is recommended that any activity other than lecture or demonstration have a student-instructor ratio of not more than ten students to one instructor (including CBT/WBT). However, resourcing/staffing limitations, and algorithms used in determining the final instructor contact hours will be finalized during development of the curriculum outline.

As a course developer, you should propose the recommended ratios for making these decisions based on factors such as possible injury, damage to equipment, or difficult physical behavior; which can drive the ratio to as low as one to one (provided in JA – I.3.C).

You may wish to consult an ISD professional or graduate of the SABA Knowledge Service Peak Performance System (previously known as Accomplishment-Based Curriculum Development (ABCD) workshops) in order to reference SABA's Course Design Job Aid, Task N (page 24) flowchart, for another source in determining recommended student-instructor ratios.

Sequencing Activities for a Lesson

The last step required in designing a lesson is sequencing the activities you have designed. The list below is the typical sequence for performance-based delivery:

- Design the introduction
  - Gaining attention
  - Tell students what objective(s) are
  - Recall prerequisite learning
- Content delivery
- Demonstration and examples
- Practice activities and feedback
- Assessment
- Summary and review
  - Include any follow-through activities
  - Provide students with job aids or memory aids for retention
  - Allow instructors to provide students with last-minute considerations about newly learned tasks when they return to the field

How to Create a Lesson Blueprint, Continued

Example (Page 1)

Following is the first page of an example of a lesson blueprint.

WS-J.3.C	Design Worksheet – Lesson Blueprint		
Project	BridgeMaster E Radar		
Designer	ETC Odom / ET1 Richey	**Date**	03 Jan 2011

Course	**Unit**
ET-C: BridgeMaster E Radar	Operation

Terminal Performance Objective(s)

(*Performance Statement*): Initialize the BridgeMaster E Radar

Lesson Activity	**Description**
Summary and Review	When to perform the system initialization procedure Which steps to perform based on the specific system configuration How to perform the system initialization procedure
Assessment (WS-N.1)	See Performance Test BME-1.0 (Initialize the BridgeMaster E Radar) for greater details
☐ **Integrated PT** *List TPO's included:*	N/A
Practice Exercise (WS-N.2) ☐ **Integrated Practice** ☐ **Special Learning Tactics**	**Final Level of Simulation** Although most students complete this task after performing once, students are given an opportunity for further practice – all are at the same level of simulation as the PT for this task. **Intermediate Level of Simulation** N/A **First Level of Simulation** Students are guided through the initialization procedure, given an opportunity to ask questions, and reminded that this will be part of their final assessment.
Demonstration	None, due to task simplicity. First activity after content delivery will be a guided practice – walking the students through the steps of the task as they perform it.
Content (WS-N.3)	Discussion of cues to perform this task Locate Initialization and Commissioning Checklist in the Ship's Manual Access Initialization Mode Navigate Initialization Menu
Instructional Method(s)	☒ Instructor-led / Lecture for Content Delivery of topics listed above ☐ Self paced tutorial/exercise ☒ Guided Practice as noted in demonstration block above, due to simplicity of task ☐ Blended solution (describe)
Introductory Activity	☐ Questions (Poll audience) ☒ Story/Video related to task – Establish Relevance. ☒ Review / Recall -- Review of Objective and Agenda

WS-J.3.C – Design Worksheet Lesson Blueprint **1** of **2**

How to Create a Lesson Blueprint, Continued

Example (Page 2)

Following is the second page of an example of a lesson blueprint.

WS-J.3.C	Design Worksheet – Lesson Blueprint		
Project	BridgeMaster E Radar		
Designer	ETC Odom / ET1 Richey	**Date**	03 Jan 2011
Activity *Presentation / Demonstration / Practice / Lab / Assessment / Capstone*	**Media** *CBT / Paper-based / graphics / video / audio / Computer*	**Student-Instructor Ratio**	**Length of Time**
Introduction	Lecture – Presentation	6:1	30 Minutes
Discussion of cues to perform this task Locate initialization and Commissioning Checklist in the Ship's Manual Access Initialization Mode Navigate Initialization Menu	Lecture – Presentation	6:1	30 Minutes
Guided Practice	Lab – Practice Exercise	6:1	1 Hour
Student Practice	Lab – Practice Exercise	6:1	30 Minutes
Assessment	Lab (using PTC)	3:1	30 Minutes
Review	Lecture – Presentation	6:1	15 Minutes
Comments: Per Course Constraints: Classroom/Lab only accommodates 6 students / class (for 6:1 ratio) Additional instructor during assessment assists with 1 instructor per side of Lab (3:1 ratio)			

WS-J.3.C – Design Worksheet Lesson Blueprint 2 of 2

Chapter 5

DEVELOPMENT PHASE

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5.1 – Chapter Introduction

Phase Overview

Synopsis

The third phase in the Instructional Systems Design (ISD) model, or AD**D**IE, is Development. In this phase the course designer takes the blueprint created in the earlier phases and pulls it together to develop supporting course materials, such as: training aids, job aids, and lesson plans.

***Note**: Remember, though, the work of course design and development is often performed as one task and it isn't linear in process. Many development efforts can be ongoing or initiated while the developer is still "in the Design phase."*

Audience

Primary Audience: Coast Guard (CG) Training Center active duty course developers and instructional designers, as well as CG civilian course developers and instructional systems specialists.

Secondary Audience: CG Training Center Performance Systems Branch managers supporting the instructional designers/course developers; the subject matter specialist; the ISD project managers, project leads, or project coordinators, school chief and others who have been identified as having some role in the ISD process. Additionally, the secondary audience may include instructional designers employed with contracted companies performing instructional design for the CG, or equivalent individuals who have curriculum/course development responsibilities, including instructors performing course maintenance with ISD oversight.

Phase Overview, Continued

Purpose

The Development chapter of this SOP is composed of sections that are to be completed in relative sequence. Each section and its associated tasks (for development of that specific deliverable) will direct course developers to a specific job aid for detailed guidance on how to perform the task. Each section will provide guidance on the development of materials to support activities common to resident instruction.

The material in this chapter expands on the information that graduates of the Coast Guard's Course Designer Course (CDC) are taught. Since technology will continue to overcome current methods and offer exciting possibilities to course developers, this chapter of the SOP has been crafted so it will provide the essentials you need today, but also position you to take advantage of tomorrow's development methodologies.

Inputs

There are several items that you need as inputs from previous phases of ADDIE before you can embark on development of instructional materials.

You must verify you have the following information before continuing on:

- Task analysis/task detailing (*WS-F.1*)
- Target audience profile (WS-F.2, also *TIP-H.5* on target audience characteristics)
- Course Parameter & Constraints (*WS-F.3*)
- Terminal Performance Objectives (written at the task level, from Design phase)
- Design blueprints (from Design phase)

***NOTE*:** *Due to the varying quality and types of data input sources, the requirement for comprehensive and accuracy data, as well as the range of data details and considerations required when making instructional decisions, it may be advised throughout the chapter to consult with an ISD professional, or graduate of one of the following approved curriculums:*

- *Coast Guard Course Designer Course (CDC)*
- *SABA Knowledge Service Peak Performance System workshops (previously known as Accomplishment-Based Curriculum Development (ABCD) workshops)*

Phase Overview, Continued

Outputs

The Development chapter of this SOP contains information on the following possible outputs/deliverables needed to support any course development effort:

- Job aids
- Performance tests
- Remediation plans

Instructional activities, including:

- Content analysis
- Practices
- Demonstrations

Instructional materials, including:

- Instructional media (handouts, PowerPoint presentations)
- Student guides/student workbooks
- Instructor guides

Evaluation of instructional materials, including:

- Technical accuracy verification
- Quality assurance ISD review
- Developmental/beta testing

***Note**: Often a final deliverable is development of the curriculum outline (CO). The draft CO is often initiated upon completion of Terminal Performance Objectives, and completed throughout the development process. This is recommended, but that process is not discussed in this SOP. For more information, refer to SOP, Vol. 6: Curriculum Outline.*

Phase Overview, Continued

Process Overview

The key events in the course development phase are outlined below. Note that we list these events in a sequence that is provided only as an aid to understanding the development process. Depending on your projects, some events may be skipped or iterations among some events may be necessary. The actual events of development to be applied to a specific project and their sequence shall be documented in a POAM.

Event	Action
1.	Develop job aids.
2.	Develop performance tests.
3.	Develop remediation plan of instruction.
4.	Develop instructional activities (based on lesson design plan): • Presentation • Practice • Demonstration • Review
5.	Conduct content analysis (to finalize lesson plans with the “need to know” information
6.	Produce instructional material / media: • Advance assignments • Glossary • FAQs and answers • Handouts • Information sheets • Handouts • Student guide • Presentations
7.	Compile Instructor Guides
8.	Evaluate instructional materials: • Perform technical accuracy and user acceptability review • Quality assurance ISD review • Perform developmental and/or beta tests
9.	Manage the course development process.

5.2 – Job Aids

Introduction

Overview

Job aids are repositories for information, processes, or perspectives that are external to the individual and that support work and activity by directing, guiding, and enlightening

performance[1]. Simply, job aids are a storage place for information other than human memory.

Job aids support task performance by helping members with tasks that are done infrequently, are too complex to memorize, or that are comprised of steps that are critical. The intention of a job aid is NOT to assist in remembering particular steps, job aids are intended to assist in the recall of those steps.

What a Job Aid is NOT: It is not a tool, even though it supports work performance. A job aid is not intended to help students achieve long-term retention although sometimes in the learning process a job aid is used early on to familiarize students with the steps they are expected to be able to perform by memory. Job aids provide steps, illustrations, and examples that keep performance on track, and accomplish a particular output.

A detailed process for job aid development is outlined in the *SOP, Vol. 4: Job Aids*. This SOP will not duplicate what can be found in that SOP, but only present the information, as needed, for consideration this during your development efforts.

Purpose

Job aids enhance a person's performance and approach to a task so it's important to spend the time to develop appropriate, quality job aids early on. Job aids are used largely because of limitations on memory. It facilitates the learning process since many tasks do not have to be trained to memory. It's more productive for learners to realize they can use something "on the job" to assist them in correctly performing a task, rather than having students struggle through remembering how to do it and have potential negative consequences for incorrect performance.

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[1] Rossett, Allison and Gautier-Downes, Jeannette. (1991). A Handbook of Job Aids, pg. 31-32. Jossey-Bass/Pfeiffer: San Francisco, CA.

Introduction, Continued

Applicability

We should choose to develop job aids in the following situations:

- When the performance is infrequent
- When the situation is complex, has multiple steps, or has multiple attributes
- When the consequences of error are severe
- When performance depends on a large body of information
- When performance is dependent on knowledge, procedures, or approaches that change frequently
- When employee performance can be improved through self-assessment and correction with new or emphasized standards in mind
- When there is high turnover and the task is simple
- When there is little time or few resources to devote to training[2]

Inputs

The following information is needed before you can begin development of job aids:

- FEA (analysis) with task and step-level data (*SOP, Vol. 2)*
- Performance support decisions (job aid versus memory)
- Task analysis/task detailing (*WS-F.1*)
- Terminal Performance Objectives (TPO)
- Evaluation Criteria Decisions (*WS-F.2*)

**Graduates of one of the approved curriculum (listed below) shall perform the task analysis or job aid analysis (if not already done so), in accordance with the guidelines and curriculum standards in that appropriate SOP.*

[2] Rossett, Allison and Gautier-Downes, Jeannette. (1991). A Handbook of Job Aids, pg. 31-32. Jossey-Bass/Pfeiffer: San Francisco, CA.

How to Develop Job Aids

Outputs

The final job aid should be a repository of information external to the individual that:

- Will assist the learner in performing a particular task in the same manner, with the same result, each time he or she performs that task.
- The learner can use when back on the job, so that he or she doesn't have to memorize what is being taught during the course.

Approved Curriculums for Development

The development of job aids is detailed in *SOP, Volume 4: Job Aids* so extensive guidance is not included herein. Also, because Coast Guard job aid development defers to one of the below approved curriculums, it is advisable to consult with an ISD professional or graduate of one of the following approved curriculums for further guidance:

- Coast Guard Course Designer Course (CDC)
- SABA Knowledge Service Peak Performance System workshops (previously known as Accomplishment-Based Curriculum Development (ABCD) workshops)
- JAWS (Job Aid Workshops), a segment of the ABCD curriculum often taught separately

How to Develop Job Aids, Continued

Steps

Coast Guard procedures for producing Job Aids, per *SOP, Volume 4* are summarized below. Please refer to a graduate of one of the approved curriculums (listed above) if you need further guidance.

Step 1: Collect task data:

- Task data collected for tasks requiring a job aid.
- The training support (job aid vs. memory decision) for each task

Step 2: Sort task data through memory versus job aid filter (if not already done so as part of FEA).

Step 3: Sort tasks to be included in job aids through training support filters (if not already done so as part of FEA).

Step 4: Design and develop job aids using one of the approved curriculums.

Formats: Decision Table, Algorithm, Cookbook, Worksheet

Step 5: Validate the draft job aid.

Step 5a: Edit the draft job aid (content, structure, language).

Step 5b: Conduct trials (beta test) for draft job aid.

Step 5c: Revise the draft job aid.

Step 6: Troubleshoot the draft job aid (optional).

Step 7: Submit the job aid for approval.

Step 8: Deploy the official job aid.

Step 9: Maintain the job aid.

How to Develop Job Aids, Continued

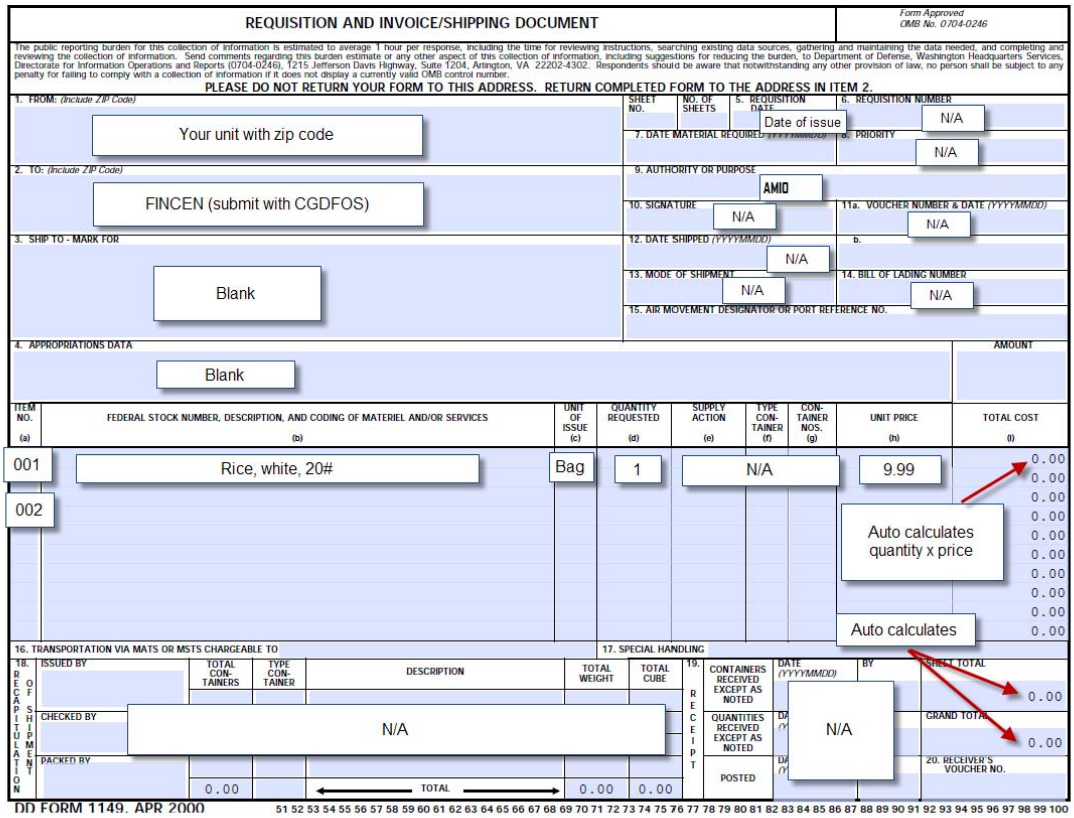
Example

Below is an example of a job aid, worksheet (for completing a form used by Food Service personnel). *Appendix O* contains additional examples.

Job Aid:
REIMBURSABLE FOOD ITEMS: DD-1149

Purpose: The most common activity that triggers the use of this form is AMIO. The DD-1149 allows you to document rations for meals served to destitute persons taken aboard. You will track the actual number of meals served on the Individual Credit Account CG-3476, but you will document the food items used for those meals on the DD-1149. This form will also be used if you disburse food items to other Armed Forces or other government agencies.

Directions: Complete each section of the 1149 worksheet as described below.



How to Develop Job Aids, Continued

Parameters/ Constraints

The process of job-aiding often helps the developer identify potential special learning problems. If such problems do exist, you should refer to your supervisor for consultation with an ISD professional since special tactics/techniques may need to be incorporated and built into your development efforts. Examples of potential learning problems that can be identified during job aid design include:

- Several nested "If/Then" decision tables within an "If/Then" table
- Flowcharts with multiple decision blocks

Course developers can identify areas of potential special learning problems or conditions through these simple steps:

1. Design job aid
2. Developmentally test (try-out) job aid
3. Identify what's wrong or didn't work in job aid
4. Re-design
5. Re-test

Also, Tip Sheet, *Tip-H.5,* from Chapter 3 on target audience analysis is another tool that early on may identify where potential learning problems could exist and your design and development may reflect that.

Additional Resources

Instructional designers and course developers have many additional resources to step them through the process for developing job aids. They include:

- SABA "Job Aid for Developing Job Aids" workshop
- CG Training System *SOP, Vol. 4: Job Aids*
- Allison Rossett's book: *A Handbook of Job Aids*

5.3 – Performance Tests

Introduction

Overview

Performance tests are activities used to assess a student's progress in the learning process against predetermined criteria. The purpose of this evaluation is to show that the trainee can successfully perform the task (process and/or product) to standard as stated in the terminal performance objective.

Coast Guard resident instruction assessments should always be criterion-referenced, meaning that the test should determine whether or not a student can meet a job-related standard regardless of the performance of the other students. For example, if a student's job requires him to file personnel documentation with 100 percent accuracy, then in order to receive a "GO" on a performance test for this requirement, a student would have to file personnel documentation to Coast Guard standards each time. Anything else would be a "NO GO."

The most obvious time for determining the evaluation criteria for a performance test is immediately after determining the conditions and standards of the terminal performance objective. Therefore, this development task is often conducted in concert with continual Design phase efforts for Determining Evaluation Criteria (*Chapter 4.3*).

Purpose

Coast Guard conducts performance testing to determine if students can accomplish the objective prior to satisfactory course completion, and presupposes that transfer of task proficiency ensuring they are ready to perform on the job.

Performance tests should focus on outcomes to be measured, and/or processes to achieve that outcome – *not* the instructional process. All Coast Guard performance tests will evaluate the quality of the output (task performance), but many will also evaluate the execution of the task procedure.

Due to all these complexities and design decisions that go into the development of performance tests, this process, which includes developing the appropriate simulations, case studies, scenarios, role plays, etc., can take a bulk of your development time, so consideration for this should be made in the project schedule section of your POAM.

Introduction, Continued

Inputs

The following information is needed before you can begin development of performance tests:

- TPOs (from Design phase, see *WS-J.1*)
- Task analysis/task detailing (see *WS-F.1*)
- Design, development and delivery constraints and parameters analysis (from Analysis phase)
- Evaluation criteria selection (from Design phase, see *WS-J.2*)

Outputs

The outputs of this task are performance tests that validate student performance proficiency for each and every performance objective, and serve as the foundation for validity and reliability. They combine the terminal performance objective developed during the design phase and the step-level data captured during Analysis with the evaluation criteria selection from design.

Performance tests should be developed according to the template in *Appendix N*, and quality reviewed using the checklists in *Chapter 7: Evaluation/Course Assessment*.

How to Develop Performance Tests

Overview

The performance stated in the objective should be the same performance required during the test. The standard or criterion used for assessment is also listed in the terminal performance objective (TPO). This is where you'll determine if you have a poorly written TPO and need to refine the criteria or specific, observable standards.

Steps

The process for developing performance tests has been outlined in the steps below. Additionally, a job aid has been included in *Appendix M* which shows the process for developing performance tests and associated testing criteria in much greater detail, *Appendix N* provides a template for creating the checklist.

Step 1: Identify the performance in each objective.

Step 2: Draft a criterion-referenced test, specifying the performance required.

Step 3: Identify the conditions under which the performance should occur. (If they cannot be emulated, match them as closely as possible.)

Step 4: Add the standards, and any other evaluation criteria to the test (*refer to Design Phase, WS-J.2*).

Step 5: Establish the steps for successful evaluation of this task (process and/or product) (*refer to Analysis task details, WS-F.1*).

Step 6: Define the testing criteria and instructions for administering the performance tests.

Additional Resources

Additional resources for developing performance tests include:

- *Appendix P*, Tip Sheet "What Performance Tests Are and Are Not"

How to Develop Performance Tests, Continued

Example

An example of a performance test checklist follows (see the complete performance test package that accompanies this PTC in *Appendix O*):

Unit 1: OS Fundamentals — Rev 01/14/2011

PERFORMANCE TEST CHECKLIST (PTC)

Name: _____ Class #: _____

TPO 1.1			
Respond to an Electrical Shock emergency			
Student may use the following:	☐ Job Aid	☐ Reference Material	Other:
EVALUATION CRITERIA:			
Accuracy: • Power correctly secured • Victim removed using nonconductive instrument • Victim placed in correct recovery position • No injury to self or others • Appropriate notification to command and/or supervisor	**Completeness:** Victim completely removed from source	**Time:** Action is taken immediately	

STEP	Attempt 1st Y	1st N	2nd Y	2nd N	3rd Y	3rd N
Process Evaluation						
1. Secure Power	☐	☐	☐	☐	☐	☐
2. Obtain help	☐	☐	☐	☐	☐	☐
3. Remove victim from source ✓ Victim completely removed from source with nonconductive instrument ✓ Action taken immediately ✓ No injury to self or others	☐	☐	☐	☐	☐	☐
4. Assess condition of victim	☐	☐	☐	☐	☐	☐
5. Brief responders	☐	☐	☐	☐	☐	☐
6. Make notifications	☐	☐	☐	☐	☐	☐
Product Evaluation						
1. Victim free of source ✓ Victim completely free, in correct recovery position	☐	☐	☐	☐	☐	☐
2. Response decisions: ✓ Accurate and immediate assessment of situation ✓ Accurate and immediate assessment of victim condition ✓ Correct decision – safe to assist without causing harm to self or others	☐	☐	☐	☐	☐	☐
3. Reports: ✓ Accurate and timely reports to command and/or supervisor	☐	☐	☐	☐	☐	☐
Additional notes for successful testing:	☐Go ☐No Go		☐Go ☐No Go		☐Go ☐No Go	
Enter testing Scenario used						
Evaluator's Dated Initials:						
Course/School Chief dated Initials (required with 3rd attempt only)						

End of PT Checklist. To record Student progress, go to the Assessment Record on the following page.

5.4 – Remediation Plans

Introduction

Overview

Remediation, or a lack of learning transfer, is the instruction given to students by an instructor or administrator to raise a student's competency in performance of a particular task(s). These are the specific directions/plans you set in place to assist the instructors when they have identified an apparent gap in learning transfer.

The need for remedial instruction will be most prevalent once the student's begin their performance tests, and instructors identify problems in the initial attempts. The feedback and guidance provided by the instructor when these performance deficiencies are identified are critical to the student's future performance and continuation in the course.

Purpose

The purpose of establishing a remediation plan in advance is to remove the guess-work from the instructors and outline recommended next steps they can take when assisting a student who is having difficulty during practices or has received a *NO GO* in initial attempts on their performance test. This can include general guidance, reference to additional practice exercises, or alternate delivery approach that may be more suitable for that student's particular learning style.

Remediation plans are most valuable when a course developer has identified potential learning problems, and an ISD professional was consulted for recommendation on how to address these special learning tactics (see section *5.2 – Job Aids*) during development efforts; as these are tasks the students are most likely to struggle with, so providing remediation plans during your development efforts is invaluable in supporting these tasks.

Introduction, Continued

Inputs

The following information is needed before you can begin development of remediation plans:

- Performance tests
- Target audience profile/analysis (regarding learning preferences)

Outputs

Remediation plans can have many possible solutions, all of which will direct the instructors to the right source for further guidance. For example, they may include:

- Redirection of the student back to text already covered in order to receive supporting context needed to perform a particular exercise or learning activity
- Additional practice exercises
- Review of standards for particular task to ensure expectations for performance are clear
- Referring instructor to consideration of student's preferences in learning styles, and assistance to the instructor on alternate methods for delivering information during remediation to meet the student's needs

Guidance to Develop Remediation Plans

Process

There is no specific process for development of remediation plans, as each course may differ depending on task complexity. Therefore, we provide guidance and reference to specific "inputs" from which course developers should refer to in order to develop remediation plans. There are many possibilities for remediation, and it is important to include some of these options for the instructor to refer to.

Example

An example of a remediation plan that accompanied an Operations Specialist (OS) task follows:

REMEDIATION FOR TPO 2.1

HOW TO CONFIGURE COMMUNICATION CIRCUITS

Guidance for Remediation is below, and applies for each item checked **NO** *during the assessment:*

Step	Action
1	Explain "not yet capable" assessment decision to the Student
2	Contrast Student performance with the required standard
3	Reinforce what the Student did well
4	Refer the Student to the relevant reference or procedure
5	Tell the Student what s/he must do to demonstrate "fully capable" performance
6	Document assessment decision
7	Obtain Student acknowledgement of assessment decision
8	Sign and date the Performance Test Checklist (feedback page).
9	Arrange for extra practice, study, or coaching as required
10	When remediation is completed, schedule the next Performance Test
11	Repeat the process until the Student either demonstrates "fully capable" performance **OR** requires referral for further assessment
NOTE	**IF** remediation **OR** referral is required, **THEN** the school chief **OR** designated deputy **MUST** certify any subsequent assessment decision

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5.5 – Demonstrations

Introduction

Overview

With job aids and performance tests completed, it is time to develop activities aligned with the instructional strategies and instructional methods specified in the design phase and which will be executed in the lesson plan. The next three sections of this chapter will address in more detail each of the following learning activities:

- Demonstrations (5.5)
- Practice (5.6)
- Content development (i.e. presentations, 5.7)

Demonstrations are activities designed to communicate concepts or skills from the instructor to the student. At this point the instructor introduces new information and guides the student through the "how to" of that task/objective.

Purpose

Incorporating demonstrations into the learning process is just one of several instructional strategies course developers can employ. The goal is to determine what strategies will result in optimum conditions for cost-effective and efficient instruction. Decisions on instructional strategies are often determined in the Design phase, but the Development phase is a good time to revisit these decisions as the course developer pulls the activities for successful instruction together.

Demonstration and practice are two of the ways that students are actively engaged in the learning process. Since people most often learn by doing, involving them as soon as possible in the hands-on aspect of a particular task is essential; thus, demonstration – more so than content delivery via presentation – is an important strategy.

Introduction, Continued

Inputs

The following information is needed before you can begin development of demonstrations:

- Job aids
- Performance tests
- Instructional strategy and instructional media selection (design decisions)

Outputs

Demonstrations developed to facilitate the content delivery in a more interactive manner that prepares the student to begin the practice exercises.

Demonstrations should be developed according to the Demonstration section of “Checklist: Instructor Guides” in *Chapter 7: Evaluation/Course Assessment*.

Guidance to Develop a Demonstration

Overview

Learning guidance for objectives that involve the application of rules, regulations, or classifications should include a range of examples to show how the core information is applied in various situations. Demonstrations are best used for procedural objectives. The demonstration serves as a concrete example of how a procedure should be performed according to Coast Guard standards. Before demonstrating the procedure, describe the conditions under which the operation or procedure is performed, to include the tools, equipment, and job aids required. During the demonstration, explain difficult steps, common errors, and decision steps. Provide only essential information during the portrayal.

Process

When providing examples or a demonstration, consider the following:

- Cover a range of situations that students are likely to experience
- Call attention to common on-the-job errors or difficult situations
- Present a step-by-step application of the performance objective indicating and labeling each step clearly
- For calculations or computations, clearly present each logical step in the formula
- Ensure that examples presented are consistent with essential information, practice, and test items
- For classification-type objectives, present examples and non-examples

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5.6 – Practice Exercises

Introduction

Overview

Most often before your practices, your design decisions included a prior demonstration of the task the student will now be attempting to complete. Practices are often developed in a manner to build upon previous knowledge and skills to ultimately have the student performing to a level of simulation as close as possible to that expected of them on the job. This may include initial practices that introduce at a basic level at low simulation, and progressive practices with more complex scenarios at higher level of simulation to prepare students for the conditions under which they have to perform this task when tested. Practices are a key component to learning transfer.

Purpose

Before developing any student materials, instructor guides, and instructional media designers need to know what it will take to provide appropriate amount of practice, and to which level those practices will occur given the conditions of the task. In general, when development is complete, the performance identified in the objective, the (final) practice exercise, and the test should result in the student performing the same behavior. Therefore, the purpose of practice is to ensure the student is competent and confident in the task expected of them, and they are ready for the performance test.

Application

Every performance objective will have at least one series of practice exercises that the student will complete before being asked to show proficiency on the performance test. The amount of practice necessary will depend on the following factors (obtained from *Task Details: WS-F.1*):

- Complexity of the task
- Previous experience and pre-requisite skills student brings to this performance
- Various situations, inputs, or stimuli that can provide the multiple scenarios that can initiate the task, or decisions that result in different outputs of the task

Introduction, Continued

Inputs

The following information is needed before you can begin development of practice exercises:

- Lesson design plan (from Design phase, see *WS-J.3.C*)
- Performance tests
- Job aids
- Demonstrations
- Task analysis/task detailing worksheet (see *WS-F.1*)

Outputs

Practices are:

- Exercises or activities intended to reinforce and consolidate recently acquired concepts or skills
- Activities that represent a directed or guided process in which the trainee manipulates the concept or practices the skill
- Cyclical exercises that tie in a feedback mechanism for the instructor when observing students practice

Practices result in the internalization of the concept or skill so that it now “belongs to” the trainee.

How to Develop a Practice Exercise

Guidelines for Practice Activities

Guidelines for developing practice activities include:

- Present practice items in instructor-led or self-assessment format. If the latter format is used, make sure there is some provision for performance feedback in the practice activity.
- Provide enough practice. Students should have opportunities to apply rules, regulations, or classifications in situations that represent what students are likely to experience in the workplace. Consistent with student management requirements, make sure that even the slowest student is afforded adequate opportunities for practice.
- Practice activities and scenarios should be sequenced in order of the challenge - from relatively easy to more difficult conditions.
- Provide opportunities to make common errors. Give feedback immediately after practice to show students what is wrong and how to correct it. Also give feedback to reinforce the correct performance, recognize worthy effort, and encourage continued effort toward mastering the performance objective.
- Practice should facilitate task progression. Practice events should be consistent with the performance objective, examples, demonstration, and performance test. Final practice conditions should be nearly identical to those of the performance test. Present the final practice activity in the same form as the performance test. Provide only the cues, direction, and support that the student would have under actual performance conditions.

How to Develop a Practice Exercise, Continued

Feedback Strategies

Students need feedback to know how well they are progressing toward proficiency of the objectives so they can use that information to improve their performance. Practices should include provisions for feedback to each student. Such feedback may be in the form of questions to confirm comprehension or clarify misunderstandings, observations regarding capable performance, or redirection when performance does not meet the required standard.

Guidelines for Feedback

To improve their performance, students require relevant and helpful feedback. Without feedback, students will not know what they are doing well or what they need to improve. Practice feedback reinforces capable performance and redirects progress toward proficiency of the performance objective. Feedback, by the instructor, can also direct students to the appropriate learning materials or performance support resources for extra study.

Guidelines to be provided to the instructor in their use of feedback include:

- Provide feedback immediately after practice. Demonstrate the correct performance. Explain how to perform the task correctly.
- For practice involving procedures or operations, feedback should progress in a logical, step-by-step sequence.
- Identify and explain common errors in terms of standards and consequences of non-performance.
- Reinforce capable performance or worthy effort.
- Ensure the student understands what he or she must do to meet the required performance standard.

How to Develop a Practice Exercise, Continued

Process

In deciding *what* to practice, use the worksheet (WS-N.2) provided in *Appendix N* and the job aid *JA-M.3* to capture the information described in this process:

Step 1: Write out what the participant would be *doing* when practicing the performance in the objective.

Step 2: Write down what additional items are needed in order to make the practice happen. These items are usually the conditions (tools, equipment, etc.) required in the performance of the skill.

Step 3: Write down how the feedback to the performance will be given. Feedback should be adequate, diagnostic, corrective, and focused on the performance.

Step 4: Identify the highest level of simulation (that which mirrors the conditions expected during the performance test)

Step 5: Determine to what level of simulation this practice will occur in relation to desired level expected during performance test (*it's helpful to note which level of many, if such is the case*).

Step 6: Draft your practice exercise scenario and directions.

Step 7: Repeat the above steps as necessary to cover the various levels of simulation in progressive practice exercises (if applicable) until the final practice mirrors the level expected in the performance test.

How to Develop a Practice Exercise, Continued

Example

Following is an example of a practice exercise developed using the worksheet:

WS-N.2	Practice Exercises Worksheet		
Project	YN A Course		
Designer	YNC Moniz / G. Smith	**Date**	06 June 2010
Performance	Given direction by a supervisor or a member request, PREPARE a business letter without error, using the USCG Correspondence Manual COMDTINST M5216.4C (series) and applying all relevant customer service standards.		
Tools and Materials *All materials required by the conditions* *Any materials needed specifically for the practice* • USCG Standard Writing Template (SWT/MACRO) for letters • Coast Guard Correspondence Manual, COMDTINST M5216.4C • Standard Subject Identification Codes (SSIC) Manual, COMDTINST M521.5 (series) • Standard Distribution List (SDL) website: http://www.uscg.mil/hq/cg1/psc/library.as • Originators information and files related to correspondence • Standard Work Station • Printer	**Feedback** Provide feedback as necessary throughout practice exercise, to provide any clarification or guidance. Explain to student why output (business letter) was not to standard, and how to improve during next attempt.		
Highest level of simulation (tested to on PT)	**Level of simulation in practice** (any changed conditions, etc)		
Student will create an actual business letter given a scenario, references and job aids (SWT for letters, SSIC, SDL, and Correspondence Manual).	Students will create actual business letters during the practice session. There is no difference in the levels of simulation between the test and practices.		
Scenario / Additional Criteria	You are the yeoman at Training Center Petaluma and working for Captain Christopher J. Hall, and he wants to invite professional golfer Arnold Palmer to be the graduation speaker for the one-thousandth graduating class of Yeoman "A" School. Mr. Palmers address is: 101 Golf Course Way, Golf Town, PA 18034. **Date the letter 1 July of the current year for Captain Hall's signature.** As a former graduate of Yeoman "A" School, I would like to extend an invitation to you to be the guest speaker at the one-thousandth graduation ceremony for Yeoman "A" Class 01-CY, which will graduate on November 10, 20CY. In preparation of this historic event, I have designated Master Chief Wolfe, School Chief Yeoman "a School as your point of contact. You can reach him at 707-765-7105 or by email at Richard.S.Wolfe@uscg.mil. Please contact me at the above number if you have any additional questions. **End of Scenario**		

5.7 – Content Development

Introduction

Overview

An important step before development of any instructor guide and course-related instructional materials to support delivery of the instruction is to determine what content is needed to assist in the learning process. Content derivation bridges the gap between what the students already know and what they need to know, or do, before being able to practice the objective

Content development fills in the blanks between your Introduction and demonstrations/practices. This may require minimal actual development if it's determined there are sufficient commercial-off-the-shelf products. This is necessary for course developers before you:

- Developing instructional media
- Developing student materials
- Compiling instructor guides

Purpose

This section helps you determine what content is necessary to support the student's successful performance of particular task. This will also help determine if you can locate and repurpose existing content, or need to develop an in-house student guide that contains that supporting content.

The decisions in this process are two-fold:

- What content needs to be delivered before the practice begins?
- How will that content be delivered (if not already determined in the Design phase- which may be evaluation of available Commercial Off-The-Shelf (COTS) products)?

For more detailed information, see the next chapter *5.8: Instructional Media*.

Introduction, Continued

Inputs

The following information is needed before you can begin development of content:

- TPOs
- Performance tests
- Practice exercises
- Demonstrations
- Design, development and delivery constraints and parameters analysis (from Analysis phase)
- Target population (from Analysis phase, see *WS-F.2*)

Outputs

The outputs of this task consist of the determination of what content will be contained within the course-related instructional materials to support delivery of each lesson. See chapter *5.8: Instructional Media*, which further discusses the media/methods of how this content will be delivered and whether development is necessary. Content may be conveyed to the students in one or any combination of the following methods:

- Video or in-person demonstrations
- PowerPoint presentations
- Textbooks providing knowledge content
- Homework exercises that have students review textbooks or references for content they'll have to apply in a lesson

Guidelines for How to Develop Content

Content Analysis

Content analysis is the process of systematically reviewing written documentation and collecting, analyzing, and interpreting critical information about specific skills, techniques, or behavior patterns that may or may not be related to a particular job or task, but that have been identified as contributing to overall successful performance.

Content is rarely generated from scratch. Almost every topic already has existing content in other forms (such as textbooks, technical manuals, references, and other courses). An assessment on what you need, and then the most efficient and effective method of delivering and providing that content to the students are the decisions made during content analysis.

Steps

The following steps will assist in determining required content versus ancillary information; also see job aid *JA-M.2: How to Determine Necessary Content*. Additionally, you may use *WS-N.3* to capture your decisions.

Step 1: Review the objective.

Step 2: Review the test and relevant practice description.

Step 3: Review the skill hierarchy and target population description, noting what the students can already do.

Step 4: List the reasons why the students cannot immediately begin practicing the objective.

Step 5: Determine if content listed is considered *Need to Know* or *Nice to Know.*

Step 6: Identify the source for delivery of content

Step 7: Identify content already available through repurposing commercial off-the-shelf (COTS) products (i.e. existing textbooks, online support, tech manuals, etc).

Step 8: Determine the delivery system by selecting a delivery system that is economical and provide features that allow you to meet the objective.

Additional Resources

Appendix P contains a tip sheet for assisting in content decisions: *Too much versus Not enough*.

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5.8 – Instructional Media

Introduction

Overview

Instructional media encompasses a wide range of materials that are developed to support the delivery of the instruction. In the Design phase, you selected an instructional strategy (*Lesson Design WS-J.3.C* page 1) to help determine the most appropriate delivery method for the content, audience, and environment, and then went on to select the instruction media for the various lesson activities (*Lesson Design WS_J.3.C, page 2)*. The various benefits and drawbacks to the different types of instructional media were presented in Chapter 4 to aid in your selection process. Some of the types of media include visuals or other training aids.

Visuals:

- Overhead transparencies
- PowerPoint presentations
- Turn charts and wall graphs
- Videos

Other Training Aids:

- Handouts
- Models and replicas
- Interactive media/computer-based training (CBT)/E-learning

Purpose

Instructional media are the means used to present information to students. To ensure that the content of the course is presented to the students in a cost-efficient and effective way, select instructional media that are appropriate to the training situation and feasible under existing resource and logistical constraints.

In this SOP, guidance is provided on the selection of instructional methods and media as individual tasks. Selection of feasible and appropriate methods of instruction is important. In some cases, it may be efficient to consider methods and media together. In other cases, such as consideration of complex interactive multimedia instruction and e-learning solutions, it may be more practical to select media as a discrete task.

Introduction, Continued

Inputs

The following information is needed before you can begin development of instructional media:

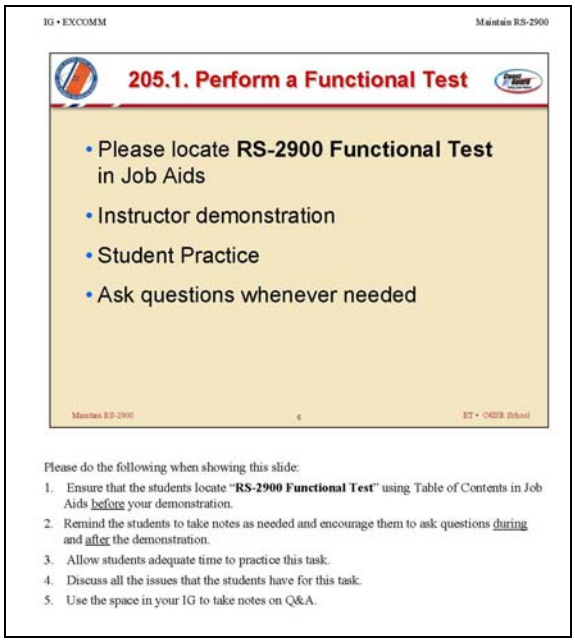
- Design worksheet *(*see *WS-J.3.C* showing media selection)
- Content development
- Target population (from Analysis phase, see *WS-F.2)*
- Design, development and delivery constraints and parameters analysis (from Analysis phase)

Outputs

The outputs of this task are developed based on the decisions detailed in the *Lesson Design Worksheet WS-J.3.C.* This often includes a PowerPoint presentation.

Example

The following is an example of a PowerPoint where the course developer utilized the “notes page” feature in the application. It is recommended that the presentation be developed with the teaching points you would like the instructor to make included in the notes block that accompanies each slide, rather than the duplication of the slide and notes included in the Instructor Guide. This “notes page” feature should be printed and referenced in the Instructor Guide when discussing delivery of this media. This reduces the need to make content changes in more than one location when an update is necessary.



Guidelines for How to Select and Develop Instructional Media

Selection Guidelines

When selecting media, ensure that the modes selected:

- Effectively support the specified instructional strategy
- Are efficient in terms of development time, money, and resources
- Do not conflict with the specific training environment
- Are relevant to the performance objectives
- Are pitched to the appropriate type and level of learning
- Permit individualization of instruction, as appropriate
- Include the appropriate copyright permissions for usage

Types of Media

Instructional media may be classified by the instructional strategy, or mode of delivery. Delivery modes include classroom instructor, print materials, audiovisual devices, interactive multimedia, and training devices.

Of all the above Instructional Strategies, throughout course development efforts for Resident Instruction, you'll primarily be concerned with LL (leader-led) instruction. This table[3] shows the recommended media for LL instruction:

Media Format	Instructional Strategy					
	SI	LL	SDL	CBT	WBT	OJT
Chart		✓			✓	
Whiteboard		✓			✓	
Chalkboard		✓			✓	
Overhead		✓			✓	
Computer Projector		✓			✓	
Slides	✓	✓	✓	✓	✓	✓
Slides with Audio	✓	✓	✓	✓	✓	✓
Audio Tape	✓	✓	✓	✓	✓	✓
Video	✓		✓	✓	✓	✓
Wall Chart	✓		✓	✓	✓	✓
Model/Mock-up		✓				✓
On-line Document	✓	✓	✓	✓	✓	✓
Print	✓	✓	✓	✓	✓	✓

[3] Source: "Designing Instruction: Support Manual" by Friesen, Kay and Associates, 1998.

Guidelines for How to Select and Develop Instructional Media, Continued

Advantages and Disadvantages

The following are some advantages and disadvantages to various types of media. If no specific type of media is provided as an input from the Design phase, you may want to go back and have further discussion if these decisions still need to me made for types of Instructional Media to be developed. Additional limitations and advantages based on your delivery method are provided for consideration in *Appendix P, Tip_P.3.*

Media	Advantages	Drawbacks
Overheads	• Convey clean professional text and graphics when prepared ahead • Can be created with participant input • Visible to a large audience	• Overhead project and screen required • Not suitable for images required to be visible for long periods of time (fan noise and eye strain) • Limit presenter movement • Cumbersome to change slides
Computer Projectors	• Can incorporate animation • Can incorporate building slides • Can synchronize easily with verbal presentation • Convey professionalism • Presenter can move around the room	• Dim room lighting reduces learner participation • Order of slides not easily changed during presentation • May be misused to focus on the visual presentation rather than as an aid to learning
Flipcharts	• Invite learner participation • Created with learners • Build ideas • Extemporaneous, spontaneous • Can be posted or referred to later	• Size of page • Waste paper • Instructor skill • Suitable for smaller groups only (less than 25)
Whiteboards	• Create with learners • Large size • Easily removed or changed	• Presenter must face the board while creating • Instructor skill
Wall charts	• Professional, clean image to post • Suitable to convey ideas or information that will be referred to throughout the presentation	• Cumbersome to carry to location • Size • Static image

5.9 – Student Materials

Introduction

Overview

Student materials present all the information necessary to support specific instructional objectives. The course developer determines the format and inclusiveness of information within a *student guide* depending on numerous factors, including the results of the Content Analysis and availability of commercial off-the-shelf (COTS) products (e.g. textbooks) that are purchased to replace or supplement the student materials being developed. Essentially, student materials are developed and written to be used in one of two manners:

- As a *teaching device* - either the central or the only source of instruction available to the student (comprehensive student guide)
- As a *teaching aid* - one of many media used to convey the instructional design (i.e. student syllabus, homework workbook, condensed student guide)

Student materials should replicate the actual work environment as much as possible. So, if a student will need to use a technical manual, recipe book or lab guide once on the job, you shouldn't present that information in a self-created student guide for training purposes. The student should learn how to use the tools they need to be successful upon graduation, so ensure the students have this in the classroom and make the student guide useful for information they don't have via other media.

Purpose

When developing student materials, the primary objective is always to transmit a specific message effectively to your target audience. The difficulty comes in determining which information should be:

- Included in the text
- Included in other media (if any)
- Discarded altogether ("nice-to-know", not "need-to-know")

The style of your writing, the amount of detail that you include, and the format of your student guide/materials will all vary depending on whether the materials are to be used as a teaching device or a teaching aid.

Introduction, Continued

Inputs

The following information is needed before you can begin development of student materials:

- Content development
- Design, development and delivery constraints and parameters analysis (from Analysis phase)
- All other instructional materials
- Any references or materials not developed in-house (i.e. COTS products)

Output

The output of this task is student materials that enhance and fill in gaps necessary to assist in the learning process.

Guidelines for Developing Student Materials

Development Factors

If developing a Student Guide, it should *not* be "cut-and-paste" content from textbooks or technical manuals that the students are already using in class. Rather, they should contain any other content information that will help bridge the gap in learning from prerequisites to new skills. Key factors in doing this are to:

- Determine the need
- Determine what supplemental information must be provided to students that isn't in other resources they will be using or have available to them throughout the course

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Determination of Purpose

Student materials can be developed to serve one of the following purposes:

- As a *full lesson-by-lesson student guide* providing student information needed throughout the instruction
- As a *homework/workbook supplement* when another media is the primary source of information for the student and the student guide is being developed to provide supplemental information and a central location for assignments and exercises that follow the instruction
- As a *syllabus guide* that really does nothing more than direct the student to appropriate locations in other media to complete and follow the instruction

When determining the purpose, be sure to refer to information from *Chapter 3, Design and Delivery Constraints, WS-F.3* for decisions on what is the best approach (if any) for development of student materials.

Guidelines for Developing Student Materials, Continued

Style, Packaging

No matter what the purpose of your student materials or the type you decide to develop for your particular project, every framework *must be based on sequenced instructional objectives*. The student materials will follow the sequencing choices previously made (as shown in the course map and your instructor guide). The *body* of your student text will vary according to the subject matter, type, and purpose.

Additionally, when determining how to package your student materials, you should look at the size of your overall document and purpose. If you are developing a student guide for a larger project, it is more likely that you will need to break up your student guide into units throughout the course; whereas, if the project is smaller in scope, your student materials may be bound as one simple workbook or document.

5.10 – Instructor Guides

Introduction

Overview

Instructor guides (IG) serve as a:

- Preparation aid *before* training begins
- Job aid during training
- Standard to ensure that training is delivered as designed

The IG is *not* a lesson plan. The IG is the *packaging* of the instructional materials of which the lesson plan is one element. The designer will make a decision on how the IG is compiled such that it may be:

- By course (i.e. one IG with 26 lessons for the course), or
- By unit (i.e. six IGs for the six units of the course, each with the appropriate lessons for that unit), or
- One IG per task (TPO)

Each lesson plan within the IG is developed as a job aid on how to facilitate the learning and skill check (performance test) for that particular task, performance, or TPO.

***Note**: If your course or lesson is primarily knowledge-based delivery of content (i.e. no demonstration, practice and performance-based testing), then consult an ISD professional on how best to proceed. These are often opportunities to consider a blended learning approach or alternate distance learning (ADL) solution.*

For the instructors that will be using this material to deliver their courses, the IG needs to be organized in a manner that makes sense and is usable, since the instructor guide ensures the course and each particular lesson is delivered in the same way with the same results every time.

Introduction, Continued

Purpose

The purpose of an instructor guide is to provide detailed guidance to the instructor on how to most efficiently deliver information to students which results in effective transfer of skills and knowledge. Instructors will have more confidence when they get up in front of a class and have a detailed instructor guide that they reference help them get the students from “novice” to “master” of those particular skills

A well-planned guide ensures that the IG content mirrors the content of the course and includes the instructional strategies necessary to deliver the course material. A well-organized instructor guide presents the information in a logical sequence and a predetermined order of contents. It is a written document that is used in conjunction with other course materials, outlining what to teach and how to teach it. It should *not*, however, be an exact replication of the content that is in the student guide, PowerPoint or other student references. It should instead refer the instructor to those materials when appropriate to help them facilitate the instruction.

Value Added

Using standardized instructional materials helps ensure that:

- Coast Guard training is as standardized as possible so that all students receive the same quality of training
- Training events allow students to learn, retain, and transfer job information and skills
- Each delivery of the lesson proceeds in consistent direction, covering all material that is required to meet objectives for each student

For these reasons, course developers shall consider instructor guides in every course development effort.

Introduction, Continued

Inputs

The following information is needed before you can begin development of instructor guides:

- Course map (sequencing of instruction)
- TPOs
- Performance tests
- Job aids
- Practices
- Demonstrations
- Instructional media
- Remediation plan
- Design, development and delivery constraints and parameters analysis (from Analysis phase)

Outputs

The outputs of this task include a comprehensive instructor guide that can be used in concert with student materials, lesson plans, and all deliverables required for instruction.

The instructor guide template can be downloaded for use from: http://www.uscg.mil/hq/cg1/TracenPetaluma/SOP/Templates.asp. Additionally, you should use the checklist in *Chapter 7: Evaluation/Course Assessment* to review quality.

Parameters and Constraints

Many instructors like the idea of having leeway in what and how they teach. However, as a course developer, comprehensive lesson plans ensure that the outputs follow sequencing structure and flow as determined in the Design phase. Course developers should advise instructors that their input is welcome, and when they feel changes or revisions are needed, they should follow the procedures outlined in *Chapter 8: Course Maintenance*. This protects the instructional integrity of the product, ensuring a systematic ISD process is followed.

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Guidelines for Developing Instructor Guides

Preparation of the Instructor Guide

Instructor guides are one of the final development efforts you should be doing, because it becomes the "packaging" – or preparation – of all the other elements you developed in this chapter. No matter how you decide to design the layout or packaging of instructor guides, they will all contain the same basic elements that are outlined in this SOP. So, although the body of the instructor guide will vary according to the subject matter, delivery media, and preferences of your customer; there is some information that shall be common to all instructor guides:

- Cover page
- About this Course, including:
    - Source
    - Instructional Settings
    - Class Size
    - Location
    - Course Length
    - Security Classification
- Table of Contents
- Course Overview, including:
    - Course Contents (units)
    - Performance Evaluations
    - Safety
    - Situational Awareness
    - Course Map

The IG is then separated by units (and then lessons within each unit). If your course design does not include separation at the unit level, you can delete that section and start next with Lesson 1.

- Unit Overview (describing lessons within that unit, and unit map)
- Lesson(s)

Several lesson plans may be packaged together within a single IG, or your packaging may be one IG per lesson plan. These are decisions that the course developer will make depending on the course and complexity of the materials. Once these packaging decisions are made, you would edit the IG template provided to include those sections you require and develop from there.

Guideline for Developing Instructor Guides, Continued

Lesson Plan

The lesson plan is based on the course design blueprint or course map produced during the Design phase. It provides the specific direction to the instructor on how to guide instruction on each particular performance objective. What is included in a lesson plan was established in the Design phase as well as the structure and sequence of instruction. Since all elements of your lesson plan should already be developed, the lesson plan is the packaging which brings all the elements together for the instructor on each objective.

Elements of a Lesson Plan

The key components for a performance-based lesson consist of the following elements:

- Introduction
  - Gaining Attention
  - Tell students what objective(s) are
  - Recall prerequisite learning
- Content Delivery
- Demonstration and Examples
- Practice Activities and Feedback
- Assessment
- Summary and Review
  - Include any follow-through activities
  - Provide students with job aids or memory aids for retention
  - Allow instructors to provide students with last-minute considerations about newly learned tasks when they return to the field

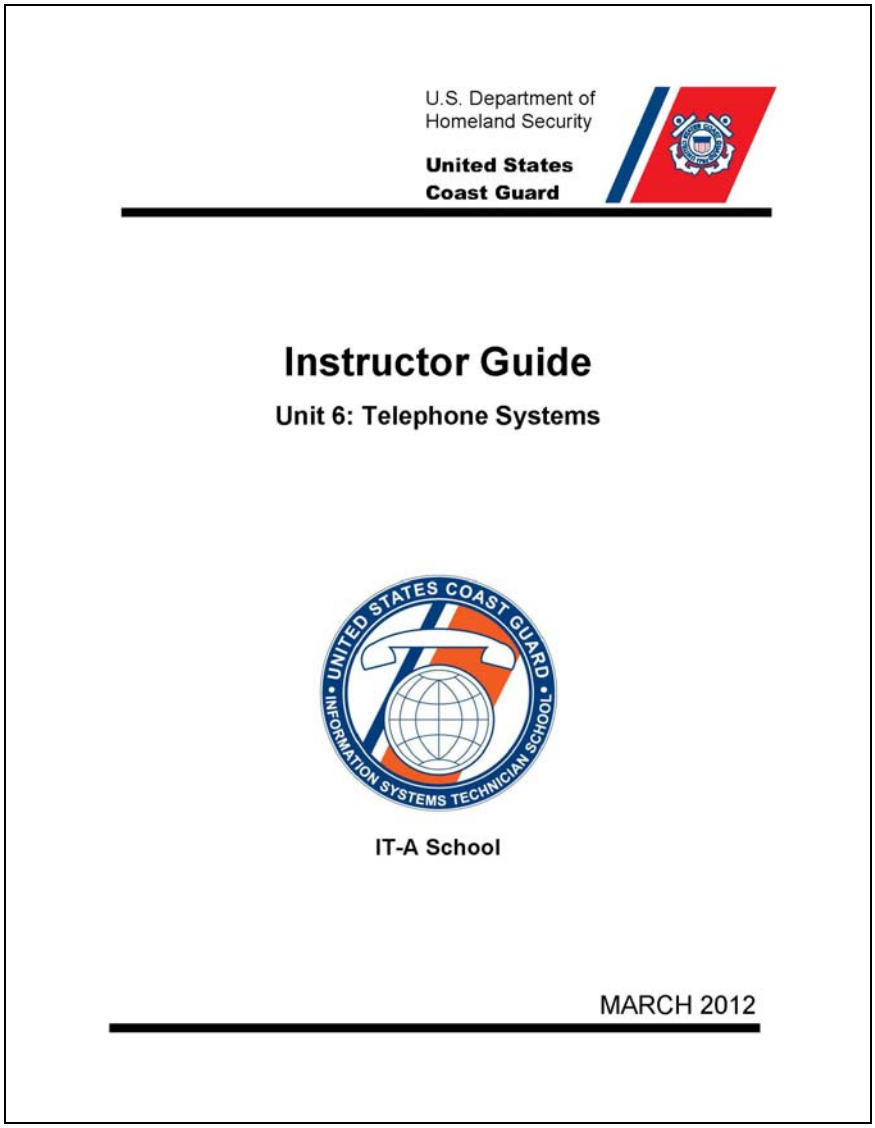
Guidelines for Developing Instructor Guides, Continued

Examples

The template for developing instructor guides is provided as a framework for compiling all your lessons. You can view the various "interpretations" of this template from the example instructor guide(s) located under *Appendix O* on one of the below websites.

Tracen Internet Webpage:
http://www.uscg.mil/hq/cg1/TracenPetaluma/SOP/SOP.asp

Tracen Intranet Webpage:
http://cgweb.tcpet.uscg.mil/T_Div/CDT/SOP.asp


U.S. Department of Homeland Security

United States Coast Guard

Instructor Guide

Unit 6: Telephone Systems

UNITED STATES COAST GUARD • INFORMATION SYSTEMS TECHNICIAN SCHOOL •

IT-A School

MARCH 2012

Guidelines for Developing Instructor Guides, Continued

Development Factors

An Instructor Guide should *not* be an exact replication of the student guide, textbooks, or technical manuals that the students are using in class. However, it should make reference to those documents as appropriate to highlight content or information that must be delivered by the instructor in order to help bridge the gap in learning from prerequisites to new skills.

Additionally, an Instructor Guide should not consist of long paragraph(s) or text for the instructor to deliver verbatim as script. Rather, they should be constructed using teaching points (i.e. bullets) that highlight the areas of emphasis in the delivery of the lesson. If reference to such content is necessary, notes or references should be provided for the instructor to that source.

Lastly, it's recommended when using instructional media (i.e. PowerPoint), to *not* include slide screen shots into the IG. As shown in *Appendix O* (*EX-O.5*) – reference the PowerPoint in your IG and utilize the PowerPoint with "notes page" feature. Doing so reduces errors and the level of effort for updating material.

Style and Format

It is assumed that each training center has developed its own style guide for detailed guidance on how instructional materials should look for local course development efforts. Customized Word templates or traditional paragraph-style text using the structured writing templates (SWT) are two typical scenarios employing best practices. The provided *IG Template-2012.dot* reflects a basic style and format including:

- Text grouped into blocks of similar information
- Blocks sequenced in an order that facilitates instruction
- Determination of required content made (excluding "nice to know" content)
- Map headers reflect the activity to be seen on that page (content, demonstration, practice, etc)

5.11 – Evaluation of Instructional Materials

Introduction

Overview

You are at this stage when instructional materials in support of each unit/course are in the process of being drafted or have already been drafted. You want to know how well they work and what to do to improve them, if needed. Developmental testing helps to recognize areas that require remediation procedures, and helps instructional staff and learners confirm that learning takes place as intended.

Unless you've got a license in mind reading, the process of "trying-out" the material is the touchstone to instructional success. There are two kinds of try-out[4]:

- The first (the focus of this chapter) is a check of an individual element (job aid, performance test, activity), that then expands to a lesson or full unit where all, or most, of the associated instructional elements are "tried out" together (looking at flow, timing, process, etc). This process involves trying it out on one person (or small-group) at a time, until all the major kinks have been removed. (this is what we refer to as developmental testing and beta testing)
- The second is a try-out of the entire course (that is the pilot, or validation, discussed in Chapter 6).

As depicted in the CG ISD model, evaluation is ongoing throughout your course development efforts; herein we will further discuss the following evaluation processes:

- Technical accuracy verification
- Quality assurance ISD review
- Validation of instructional materials through one or all of the following processes:
  - Developmental testing
  - Beta testing
  - Pilot testing (*Chapter 6*)

The developmental testing process (to include technical accuracy verification and quality assurance instructional design review) can be ongoing, as each deliverable is developed it can be reviewed and tested.

[4] Mager, Robert, Making Instruction Work, 2nd Edition, CEP Press: Atlanta, GA, 1997.

Introduction, Continued

Purpose

At this point in the development process, performance objectives have been developed, tests prepared, instructional methods/media selected, and instructional materials have been developed. Yet there is no assurance that instruction will be effective. For this reason, the various elements of instruction are tested to assess the extent to which they meet product standards and are likely to support professional, student-centered instruction. If deficiencies are found in the various components of the instructional materials, they are corrected before the course is ready for the pilot test in the next phase *Implementation: Chapter 6*.

Inputs

The following information is needed before you can carry out the evaluation of instructional materials:

- TPOs
- Job aids
- Performance tests
- Instruction methods determined
- Instructional media
- Instructional materials (student guide, instructor guide, etc)

Essentially, you need the instructional materials that you wish to evaluate!

Outputs

The outputs of this process include:

- Technically accurate instructional materials (output)
- All materials developmentally tested (tried out)
- Materials produced using industry standard instructional design practices
- Completed, materials review worksheet (*WS-N.4*) for each lesson

Introduction, Continued

Project Schedule considerations

As with all stages of the project, be sure to manage the project timeline. Often times developmental testing is overlooked and not taken into consideration in the project schedule, impacting deadlines. Be sure to account for this in your schedule, as well as provide expected turn-around times to the AP/SMS and QA reviewers for completing each part of the evaluation process.

Additional Resources

The following additional resources are available

- Chapter 7: Evaluation
- *Appendix M: How to Review Course Materials* job aid and *Appendix N, Course Materials Review Worksheet (*WS-N.4).

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Part 1: Verify Technical Accuracy

Overview

Materials may be well-developed, but if they are not technically accurate for the intended audience, learning may not take place or can result in wrong skills/knowledge; distracting from the learning process. Verifying the technical accuracy is the first step in the process for reviewing materials. The Accomplished Performer (AP), Subject Matter Specialist (SMS) and/or Schoolhouse reviews the materials that are developed to ensure they are:

- Technically accurate for rate-specific content
- Usable for the instructor

The expectation of the AP/SMS conducting this review is to provide:

- Open, honest, and relevant observations regarding the technical accuracy and quality of each element of the course
- Helpful recommendations for improving the usefulness, relevance, or value for future users

It's always helpful to have your designated SMS review the material to make sure there are no technical errors. For technical materials, this is often helpful before you have a peer try-out your elements/units or lessons, but if not you would have this done after the peer try-out to ensure there were not any major technical errors.

Steps

The process described below assumes you have all necessary course material that has not yet received a technical accuracy review:

Step 1: Identify the AP or SMS that will be conducting this review.

Step 2: Provide the AP, SME, or Schoolhouse representative conducting the review with the *How to Review Course Materials* job aid located in *Appendix M*, and Worksheet (WS-N.4). This job aid and worksheet is intended to help walk the reviewer through the process and capture the data valuable to the course developer.

Step 3: Have reviewer submit recommendations back to course developer

Step 4: Make changes as necessary.

***Note**: Follow local processes for the routing and review of course materials through AP, QA review and onto approval for pilot test.*

Part 2: Perform Quality Assurance ISD Review

Overview

Materials should then be reviewed to ensure they were developed to the instructional systems design (ISD) standards outlined throughout this SOP.

Steps

A series of checklists has been developed for use during the quality assurance ISD review and approval of instructional materials developed to support resident courses. These checklists (*see Chapter 7, Appendix U*) are the same guidelines that should be used at this stage to ensure materials are developed IAW overall standards outlined in the SOP. In short, the ISD professional conducting this review should follow the steps below:

Step 1: Select the appropriate checklist from Chapter 7 (i.e. if reviewing job aids, select the job aid checklist).

Step 2: Ensure all quality standards are included. If discrepancies are noted in the review, discuss with the course developer, and return checklist with the material reviewed.

Step 3: Course developer makes revisions, as appropriate. If revisions are necessary, submit the material for QA review again until final approval is received and it is ready for pilot/validation.

Part 3: Testing Course Materials

Overview

Developmental, or beta, testing is analogous to verification or internal acceptance testing performed in a product development setting. As materials are developed, they should be validated and tested to ensure the materials – as designed and developed – achieve the intended learning outcome.

The purpose of developmental testing is to determine the extent to which instructional products meet training system specifications, technical accuracy requirements, and user acceptability criteria. In other words, asking whether the particular instructional component (job aid, test, exercise, etc.) works as intended, or are adjustments required. These small-scale try-outs test a particular element of the instruction.

The purpose of a beta test is to put more of the instructional elements together in order to have a test run through the instruction and iron out the order, timing, or flow, and ensure that the compiled materials produce the learning outcome intended, all prior to a full course pilot test.

Part 3: Testing Course Materials, Continued

Developmental Testing

Developmental testing is performed as soon as draft instructional materials/activities are produced. It's valuable to try out and evaluate elements of the instructional product early and often, rather than waiting for the entire product to be developed, and then discovering problems with the materials. Addressing problems early will help keep your development on track.

The following steps outline the developmental testing process:

Step 1: Prepare for developmental testing of the element(s) of the instructional materials.

Step 2: Conduct developmental test for each element.

Step 3: Record results.

Step 4: Analyze results and determine any required revisions.

Step 5: Make revisions to the materials.

Step 6: Conduct beta test for a module of instruction (if applicable).

Step 7: Update materials as necessary.

RESULT: Materials are ready for the pilot test.

Beta Testing

During the Development phase of the ISD process, beta testing *may* be conducted in one of the following manners:

- Testing instructional materials to limited audience of individual and small-groups
- Small-group evaluation of the instruction prior to final validation testing

In the next chapter, you will learn about pilot delivery, or final validation, which ensures that instruction is capable of producing confident graduates who meet job performance requirements.

Chapter 6

IMPLEMENTATION PHASE

Table of Contents

6.1 – Chapter Introduction

Phase Overview

Synopsis

Imagine that you're a theater director with a new show opening on Broadway. You've rehearsed each scene and act with your players. You've practiced the various acts or scenes. You've made a few improvements. You think the timing is just right. The players know their lines and can hit their marks. Before opening night, you'll have a dress rehearsal, for one last check that everything is ready for prime time. Each scene and act flows well during a live performance. As the curtain falls on your opening night performance, your show gets a standing ovation. Your players take their bows and curtain calls. You receive good reviews. You know that your show has entertained its audience and pleased its critics.

Course developers follow a similar process to make sure that instruction works in practice. In the instructional system development (ISD) model, the *Implementation* phase involves the actual delivery of new or revised instruction and its formal acceptance within the existing training system.

In our Broadway analogy, the practice of acts and scenes are the developmental and small scale beta tests for particular components during development. The dress rehearsal is the pilot test for entire course (and the focus of this chapter). The audience is your students and the critics are the program managers and training managers.

Phase Overview, Continued

Purpose

The focus of this chapter is on how to get newly developed materials ready for full implementation by means of a pilot. The thought being, that if there are deficiencies in the training materials, they will be discovered in the pilot and corrected before the course is accepted by the sponsor and fully implemented into the Coast Guard's training system.

Chapter 5 described how the Coast Guard develops training materials; Chapter 7 discusses the evaluation of training; and Chapter 9 discusses the implementation on a Coast Guard wide training system level.

In this chapter, you will focus on putting all the pieces together for full course pilot. You are trying out the entire course, all the components together in the appropriate structure flow, timing, Ultimately, you must determine whether it works (i.e. is it capable of producing graduates who can meet desired results of the training) and fits the learner (acceptable to the students and stakeholders).

Audience

Primary Audience: Coast Guard (CG) Training Center active duty course developers and instructional designers, as well as CG civilian course developers and instructional systems specialists.

Secondary Audience: CG Training Center Performance Systems branch managers supporting the instructional designers/course developers; the subject matter specialist, the project lead, project manager, school chief and/or others who have been identified as having some role in the ISD process. Additionally, the secondary audience may include instructional designers employed with contracted companies performing instructional design for the CG, or equivalent individuals who have curriculum/course development responsibilities, including instructors performing course maintenance with ISD oversight.

Implementation Process

Key Events

Key events in the Implementation phase of ISD include:

1. Planning for delivery of pilot
2. Preparing for delivery of pilot
3. Conducting delivery of pilot
4. Evaluating the delivery of pilot
5. Rolling out the final product

Steps

An implementation process is presented below. Note that the actual sequence of events may vary according to the scope and nature of the project.

Step1: Plan for instruction.

Step 2: Prepare for instruction.

Step 3: Conduct pilot (*WS-R.1: Pilot Course Implementation Form, PCIF*).

Step 4: Analyze the results of the pilot.

Step 5: Make final revisions to instruction as necessary.

Step 6: Determine whether additional pilot is necessary. (If pilot is necessary, repeat Steps 1-5. If the pilot is not necessary, proceed to the next step.)

Step 7: Report findings and recommendations *(see sample Pilot Course Evaluation Report, PCER, Appendix S).*

Step 8: Finalize materials, gain approval, and lock them down.

Step 9: Hand off course material to School.

Step 10: Follow your local procedures to close out the project.

Implementation Process, Continued

Inputs

Depending on the scope and nature of the project, key inputs to the implementation process include:

- Instructional materials from Development phase
- Draft curriculum outline
- Qualified instructor(s)
- Representative group of students
- Appropriate learning environment, tools, equipment, training databases, etc.

Outputs

Depending on the scope and nature of the project, outputs of the implementation process typically include:

- Pilot Course Implementation Forms (PCIF) for each lesson
- Final report and recommendations from pilot, such as a Pilot Course Evaluation Report, (PCER).
- Course materials ready for roll-out

Additional Resources

Implementation references include:

- U.S. Coast Guard Training System Standard Operating Procedures, SOP Vol. 6: *Curriculum Outline*
- *Making Instruction Work*, Robert F. Mager, Chapter 16 Center for Effective Performance

Implementation Process, Continued

Example

Below is an example of a form used to collect data when validating course materials during the pilot test (*WS-R.1: Pilot Course Implementation Form*).

WS-R.1: PILOT COURSE IMPLEMENTATION FORM

Please complete this form as thoroughly as possible and attach supporting materials as necessary.

Title of Course: Cold Water/Ice Diving Course	**Course Start Date:** 26 Feb 2010	**Course End Date:** 5 Mar 2010	**Lecture Evaluation Date:** 2/26/2010
Unit/Lesson #: Lesson 1	**Lesson Title:** Prepare the Dive Plan.	**Instructor:** Chief "Sample"	**Pilot Course Evaluator:** Dan Montgomery

Lesson Times

Proposed Duration: 1 hr 55 minutes	**Lecture / Lab /Etc.**	**Proposed Time**		**Actual Time**		**Mid-Lecture / Lab Break**
		Start	**Finish**	**Start**	**Finish**	
	Lecture	0900	0945	0900	0937	13 minute break
Actual Duration: 1 hr 50 minutes	Practical Exercise	0955	1055	0950	1050	

Time-line notes:

Job Aids

Yes☐ No ☒

Job Aid Name: None	**Job Aids Used:** Yes☐ No ☒
Job Aid Name:	**Job Aids Used:** Yes☐ No☐

TERMINAL PERFORMANCE OBJECTIVE (TPO)

1.1 Given a real or simulated Operations Order (OPORD) or Deployment Order, **PREPARE** a dive plan without error.

STEPS

#	Step	How Met
1.1.1	**IDENTIFY** mission objectives	Lecture and Practical Exercises
1.1.2	**SELECT** mission location.	Lecture and Practical Exercises
1.1.3	**SCHEDULE** the mission	Lecture and Practical Exercises
1.1.4	**IDENTIFY** operational hazards	Lecture and Practical Exercises
1.1.5	**SELECT** dive team personnel	Lecture and Practical Exercises

METHODS OF INSTRUCTION

(List the instructional methods used)

☒ Lecture ☐ Demonstration ☒ Exercise/Practical ☐ Exercise ☐ Exam/Review ☐ Laboratory
☐ Role Play/Simulation (RP/S) ☐ Video Tape/DVD (VIDEO) ☐ Computer-Based Training (CBT)

Other:

WS_R.1: Pilot Course Implementation Form Page 1 of 2

Implementation Process, Continued

Example, Continued The following image is the second page of the PCIF:

WS-R.1: PILOT COURSE IMPLEMENTATION FORM

Please complete this form as thoroughly as possible and attach supporting materials as necessary.

Title of Course:	**Course Start Date:**	**Course End Date:**	**Lecture Evaluation Date:**
Cold Water/Ice Diving Course	26 February 2010	5 March 2010	2/26/2010

INSTRUCTIONAL MATERIALS, EQUIPMENT & TECHNOLOGIES

(List materials required by the Instructor to present this lesson)

☒ Instructor Guide ☐ CG Addendum ☐ Computer ☒ PowerPoint ☐ Web Access ☒ Classroom
☒ Handouts ☒ Lab Exercise ☐ Role Play/Simulation ☐ Video Tape/DVD (VIDEO)
☐ Computer-Based Training
Other:

STUDENT MATERIALS

(List materials required by the student)

☒ Student Guide ☐ CG Addendum ☐ Desktop Computer ☐ Web Access ☐ SAROPS
Other:

ASSIGNMENTS

(List items required of the students)

☐ Pre-reading ☐ Pre-exercise ☐ Pre-Exam ☐ Pre-Computer-Based Training (CBT)
☐ Post-reading ☐ Exercise ☐ Exam ☐ Laboratory ☐ Computer-Based Training (CBT)
Other:

ASSESSMENT

(List the methods used to assess student learning):

Method of Assessment	**System for Grading**
Individual and group participation. Students were responsible for planning each dive with instructors adding feedback as needed.	Instructors observed the groups as they prepared and presented their dive plans. There was no formal grading done.

OBSERVATIONS

(TPO/EOs not met, major suggested changes to instruction, etc)

The TPO and all EOs were met.

SUGGESTIONS

(Minor suggested changes, etc.)

None

ADDITIONAL COMMENTS

None

WS_R.1: Pilot Course Implementation Form Page **2** of **2**

6.2 – Planning for the Pilot

Introduction

Overview

Begin planning for the pilot when you have identified new performance needs during the analysis phase of ISD and your manager has authorized the development of new instruction.

As course developer, you and your team will produce a technically accurate draft product that is acceptable for beta test or pilot delivery before a group of students in a live training environment. At this point, you will be ready to conduct the instruction.

Steps

The basic steps for planning for a pilot test are:

Step 1: Determine (or confirm) pilot date.

Step 2: Determine training team.

> **Note**: In the pilot, we know from development that the performance tests are sound, but we are really trying out the instructional strategy for the first time. It is extremely helpful for the sake of continuity to have the same person who designed the course materials also validate that the strategy works during the pilot.

Step 3: Determine training site(s).

Step 4: Determine student population.

Step 5: Determine collection plan for pilot data.

> *Follow your local procedures if you use a different form/collection tool during validation of your pilot test (other than WS-R.1: PCIF).*

Performance Support

Use the following performance support resource to plan for the pilot:

- *How to Plan for the Pilot* (JA – Q.1)

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6.3 – Preparing for the Pilot

Introduction

Overview

Preparing for the pilot begins during the initial planning of an ISD project and continues throughout all subsequent phases of ISD. Ongoing evaluation activities ensure that all aspects of the training system, including the delivery function, are prepared to support instruction.

Thorough preparation ensures that instruction produces graduates who can meet Coast Guard performance requirements. Conversely, inadequate preparation diminishes the quality of instruction. If instructors are not ready to deliver the course or necessary resources are not available, students will have unnecessary difficulties in mastering performance objectives, no matter how well the instruction is designed. Consequently, the training system fails.

Refer to the *Training System Management* in Chapter 9 of this SOP for additional preparation guidance and support.

Steps

Preparing for the pilot involves the following steps:

Step 1: Prepare training materials.

Step 2: Conduct a run through of new materials with instructors.

Step 3: Revise training materials (if needed).

Step 4: Prepare training site.

Performance Support

Use the following performance support resources to prepare for the pilot:

- *How to Prepare for the Pilot* (JA – Q.2)

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6.4 – Conducting the Pilot

Introduction

Overview

Now all the planning and preparing comes to fruition when you actually conduct the pilot. This is really the first formal evaluation of a new course. We use the word pilot to mean the tryout of the entire course and not just parts or pieces.

Steps

There are not really steps that are being completed in this phase, but rather a number of activities that are being completed in addition to the actual delivery of the course in the real training environment. These activities include:

- Data about each lesson is collected by means of the Pilot Course Implementation Form (WS-R.1)
- Updates to the course materials regarding necessary deviations from the instructor guides
- Updates to the course materials regarding deficiencies in the course materials

Performance Support

Use the following performance support resources to conduct the pilot:

- *How to Conduct the Pilot* (JA-Q.3)
- *Pilot Course Implementation Form* (WS-R.1)

Roles and Responsibilities

Course Developer

During the pilot, the course developer's roles and responsibilities include:

- Help the instructor(s) to prepare.
- Make sure that duplications of required materials are completed on time, in sufficient quantities.
- In cooperation with the school chief, introduce the pilot
- Use data collection forms to evaluate and capture data in the observation of the pilot *NOTE: It is recommended that at least one course designer be involved in the project to conduct the pilot.
- Assure students that their observations and feedback will be treated confidentially.
- Protect the integrity of the instructor(s). Provide feedback and observations in private, not in front of students.
- Help resolve instructor questions or unusual problems.
- Be an unobtrusive observer. Stay out of the direct view of students.
- Track start and stop times for lessons, practice exercises, and performance tests.
- Note problems, deviations from the plan of instruction, and observed discrepancies with the instruction or materials.
- Debrief the instructor, other observers, and students daily, at the end of each unit, and at the end of the course.
- Analyze and report the results of the pilot.

Instructor(s)

During the implementation phase, the roles and responsibilities of instructor(s) include:

- Deliver the course as designed.
- Protect the integrity of the course. Discuss course problems in private, not in front of students.
- Control the course content, process, activities, and learning environment.

6.5 – Evaluating the Pilot

Introduction

Overview

Now that the pilot is over, it is time to evaluate how it went and report your findings up the chain. The most common way for documenting and reporting findings is via a pilot course evaluation report (PCER). Your final report shall include: background information important to the reader about the pilot; major observations made during the pilot; and recommendations about proposed future action regarding the course and reasons for conclusions and recommendations. (*See PCER example, Appendix S*). Recommendations for changes to the course need to be based on data obtained during the pilot.

Steps

Evaluating the pilot involves the following steps:

Step 1: Review completed PCIFs.

Step 2: Organize information into quantitative and qualitative categories.

Step 3: Review evaluator, designer, instructor, and student comments about the course.

Step 4: Make recommendations about future course of action.

Step 5: Summarize data into a report.

Step 6: Archive decision for future reference.

Performance Support

Use the following performance support resources to prepare for instruction:

- *How to Evaluate a Pilot* (*JA – Q4*)
- *Example of Pilot Course Evaluation Report (EX-S.1)*

Pilot Evaluation

Quantitative and Qualitative Data

Qualitative involves analysis of data from open ended questions such as: “What did you like most that lesson?” Quantitative data involves analysis of numerical data such as the percentage of students passing performance test on first try. Both can be powerful information for making changes to a course. Likely the most telling quantitative data is statistical results of how well or poorly learners achieve the course performance objectives (Level 2).

Qualitative data is a little trickier to dissect and course developers should be aware of whether such information that is gathered is cosmetic or substantive.

Cosmetic vs. Substantive Suggestions

Once the feedback about the pilot is organized, you will likely have evaluator, peer, instructor, and student comments about the course. It is important to distinguish the comments as either cosmetic or substantive. Substantive comments are those that directly affect the learning outcomes of the course. Proposals about typos or misspelled words, deleting unneeded activities, or correcting technical errors are substantive in nature and should be fixed as timely as possible. Cosmetic comments are those having to do more with the manner and approach the designer used in the instructional strategy. An example of cosmetic changes include remarks about classroom arrangement, uniform of instructors, stories told by instructors, or use of names placards on the tables. The thing to remember is cosmetic changes to a course can be made as long as it improves the overall student’s experience and can be easily made without sacrificing the validity or reliability of the course.

Determining Future Action

Once you’ve reviewed all the data, you have to make a final recommendation about the way ahead for the course and to summarize your recommendations into a report. Based on the results, determine the appropriate recommendation:

- Introduce the course as planned.
- Introduce the course after making specific changes.
- Make substantive changes and conduct an additional pilot.
- Return the course to the design or development phase.

6.6 – Rolling out the Final Product

Introduction

Overview

After corrections are made from the results of the pilot, it is finally time to roll out the final product for full implementation. This last section of the chapter is devoted to how to put into service the new instruction and close out the project.

Although the majority of this chapter of the SOP is devoted to trying out the materials via the pilot, during the Implementation phase, members of the School house will continue to deliver the instruction. As course developer, it may become your duty to monitor, revise, and validate instruction according to plans for improvement based on evaluation outcomes.

Steps

The steps in implementing the final instructional product involve the following activities:

Step 1: Roll out the final instructional product.

Step 2: Continue to monitor the results of instruction via Course Assessments (CAP) and Classroom Observations, per Chapter 7.

Step 3: Submit curriculum change notices as necessary to maintain currency, per Chapter 8.

Step 4: Assess the results of instruction – Level 1, 2, 3.

Performance Support

The *How to Roll out the Final Product* (Job Aid JA-Q5) provides a step-by-step guide for operational evaluation of the instructional system.

Chapter 7 (Evaluation) has detailed instructions, job aids, and checklists for how to continuously evaluate the effectiveness of instruction.

Chapter 8 (Course Maintenance) gives guidance on how to prioritize and handle course change notifications.

Chapter 9 (Training Systems) discusses the management, administration, support, and delivery functions that are usually out of the instructional designer's hands, but need to be present for instruction to be effective and successful.

Roll out of Final Product

Procedure

Local procedures will likely dictate how to get materials accepted into the School house after the pilot and locked down to prevent unauthorized changes to them. A short job aid (JA – Q5) is presented in *Appendix Q* that provides some guidelines about what that process could entail.

Chapter 7

EVALUATION PHASE

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7.1 – Chapter Introduction

Phase Overview

Synopsis

Evaluation is the fifth, and final, stage of the ADDI**E** process. As shown in the Coast Guard ISD Model below, evaluation is *ongoing* throughout all phases of the ADDIE process.

The two processes discussed in this chapter are the Course Assessment and Classroom Observation process. The course assessment process outlines the standards to which instructional materials are to be designed and developed. Classroom observations provide the assurance that instructional integrity is maintained and materials are valid. When used together, these processes provide quality assurance for courses, ensuring instructional integrity is maintained and that learning is taking place.

- The **Course Assessment Process (CAP)** is a document review of the instructional materials to ensure they were developed according to SOP and ISD quality standards (which are outlined on a series of checklists).
- The **Classroom Observation** process includes periodic classroom visits to physically observe the delivery of instruction to ensure it is delivered as designed.

Audience

Primary Audience: Coast Guard (CG) Training Performance System Branch Chiefs, CG civilian course developers and instructional systems specialists, Curriculum Development supervisors or local training officers and Master Training Specialists (MTS).

Secondary Audience: CG Training Center Performance Systems Branch managers supporting the instructional designers/course developers; the ISD project managers, project leads, or project coordinators, school chief and others who have been identified as having some role in course maintenance.

Phase Overview, Continued

Purpose

As mentioned in *Chapter 1*, the purpose of this phase is to answer the following questions:

- Did the training do what it was intended to do?
- Are Instructors delivering the training as designed?
- Does the instructional strategy work for the learners (primary), as well as the instructors (secondary)?

However, it should not be the first time you are considering these questions, because as previously mentioned – evaluation is **ongoing** throughout the ISD process. So how does this chapter assist in answering these questions?

The Course Assessment Process (CAP) assists us in answering if the materials were designed and developed to standard (starting in *Chapter 4*). As mentioned in *Chapter 5*, the course assessment process provides a set of standards to which instructional materials are to be designed and developed. These checklists are helpful to reference when conducting the QA ISD review, mentioned as part of the developmental review/testing process.

Classroom Observations assist us in answering if instructional integrity has been maintained (being delivered as implemented, and working for the learners/instructors), and assurance that materials are valid and reliable – which begins in *Chapter 5*.

Lastly, results of Level 3 evaluations help us answer if the training did what it was intended to do – can the performers complete the task to standard once on the job?

Note: *More information on the Level 3 evaluations can be found in Appendix X-Tip Sheet: Kirkpatrick's Four Levels of Evaluation, and SOP, Vol. 3: Evaluation.*

Phase Overview, Continued

Inputs

The sole input to this phase is a currently delivered course. However, with your courses, there are several stimuli that can prompt a course evaluation to take place, such as:

- An newly developed course has been implemented and convening for at least one year
- An existing course is due for its triennial update (curriculum outline update due)
- Receipt of a Curriculum Change Notification Form (*Chapter 8*) citing a need for Major Change to a course
- Classroom Observations that have taken place identify decreased instructional integrity
- Results of Level 3 evaluations for a currently convening course (see *Tip Sheet-X.1: Kirkpatrick's Four Levels of Evaluation*) identify a gap in teaching the desired/optimal performance

Outputs

The primary outputs as a result of this chapter include:

- Completed checklists and report documenting results of an assigned CAP.
- Completed checklist and observation summary documenting results of classroom observation(s).

Additional Resources

Additional information on Evaluation can be found in *SOP, Vol. 3: Evaluation* and Appendix X: *Tip Sheet-X1: Kirkpatrick's Four Levels of Evaluation*.

Phase Overview, Continued

Evaluation Matrix

A classroom observation can occur in isolation, for periodic quality assurance of the delivery/materials; however, it's recommended to observe classes in conjunction with a CAP, given your local resource limitations. The following table provides some guidance to help you determine if and when you may conduct Classroom Observations and/or Course Assessments (CAP).

IF	AND	THEN conduct:
An newly developed course has been implemented and convening for at least one year (since implementation)	Periodic Classroom Observations have taken place	No further action required
	Periodic Classroom Observations have **NOT** taken place	**Classroom observations** *(of various lessons to spot-check the instructional integrity and ensure material is being delivered as designed)*
An existing course is due for its triennial update (curriculum outline update due)	Periodic Classroom Observations have taken place	**CAP** (*and combine with any data collected from observations to determine where updates are needed.*
	Periodic Classroom Observations have **NOT** taken place	**CAP** and **Classroom Observations** (*observe those lessons impacted by need for update (new RPQ's, new equip, etc), if known)*
Receipt of a Curriculum Change Notification (Chapter 8) citing a need for Major Change	------->	**Classroom Observations** *(for the lessons impacted by the change request, CAP not necessary*)
Classroom Observations reveal discrepancies	Curriculum Change notice is submitted	**CAP**
Results of Level 3 evaluations identify a gap in teaching the desired/optimal performance	------->	**CAP** and **Classroom Observations**
Formal review is mandated according to the assigned review cycle	------->	**CAP**

7.2 – Course Assessment Process (CAP)

Introduction

Overview

The Course Assessment Process (CAP) is designed to provide an internal evaluation of the instructional elements within existing courses, and serves as an excellent source of feedback. CAP also serves as the way in which courses are linked to performance through the systematic process used for each course assessed.

The course assessment process is a continuous improvement initiative. Performing evaluations on your course material is an important link to providing quality control and standardization to course materials in accordance with the established training systems standard operating procedures. This process helps to ensure that there is no loss of instructional integrity or deviation from the instructional materials, as originally designed and developed. If deviations are necessary, those modifications should have been submitted through the change management process detailed in *SOP Vol. 5, Chapter 8*.

Requirement

All courses will be scheduled for a CAP at some point within the FC-51 assigned review cycle to ensure they remain focused on the missions of the 21st century Coast Guard. Initially, a course assessment should be conducted *annually* by internal school resources to determine if any change requests are necessary.

It is *recommended* that an internal mid-cycle self-assessment be conducted for each course to identify and correct deficiencies prior to the formal review mandated according to the assigned review cycle. Ideally, this will be conducted at the half-way point of the evaluation cycle (for example, a triennial course would be reviewed 18 months prior to the next scheduled revision).

At a minimum, a formal review is mandated according to the assigned review cycle (i.e. every three years for a course due for update triennially). Ultimately, the frequency at which your staff is able to support the completion of a CAP should be determined, and outlined, in your local procedures/SOP.

Process

Process Overview

As mentioned, once a situation prompts the need for a course assessment, tasking of this project is often initiated through the Performance Systems Branch or your training officer. The Branch/School Chief, working in partnership with the Performance Systems Branch, retains responsibility for the execution and completeness of the assessment. The school representative for the particular course identified for a CAP should work closely with the person or persons (assessment team) identified to conduct the assessment, and ensure they have complete access to all the course materials. A subject matter specialist (SMS) should be identified as a point of contact for technical questions.

An in brief (alignment meeting) should occur in a timely manner after the initial tasking. The purpose of the in brief is to establish the timeline for the remainder of the course assessment process, define roles and responsibilities, and communicate expectations during the process and upon completion of the assessment (see *Chapter 2*).

Assessment team should then conduct the CAP, utilizing the checklists provided in *Appendix V* (as well as any specifics outlined by local procedures/SOP). Upon completion, the results will be summarized in a final report, and will be presented to the school or course point of contact in an out brief.

Course Materials for CAP

The course materials that should be provided to the assessment team include, but are not limited to:

- Block plan/ schedule
- Curriculum outline
- All Performance Tests (level 2 evaluations)
- Master-copy of student guide/student materials
- Master-copy of instructor guides
- Master-copy of PowerPoint® presentations
- Job aids

Additionally, any other instructional materials developed for that particular course should be provided, as well as audio/video presentations, blended learning solutions, etc. used to support course objectives.

Process, Continued

Conduct Course Assessment

Courses will be reviewed using the comprehensive checklists provided in *Appendix V* (as well as any specifics outlined by local procedures/SOP). The CAP will ensure alignment with current training system standard operating procedures (SOPs), to include:

- Completeness and relevance of analysis that initiated course.
- Completeness and validity of curriculum outline.
- Validity and reliability of all evaluations, worksheets, performance criterion checklists, and test items.
- Completeness and relevance of student guides and other student materials (handouts, etc).
- Completeness and relevance of instructor guides (lesson plans).
- Relevance and clarity of PowerPoint®, audio/video, Advanced Distributed Learning (ADL) or other forms of blended learning presentations and training support material or equipment.
- Readiness of course for review by the American Council of Education (ACE).

Assessment Report and Outbrief

Upon completion, the assessment team will prepare a comprehensive report containing detailed findings from the CAP. It is recommended that an out brief be scheduled with key stakeholders for that course, to review the findings and make recommendations for remediation of any identified problems areas. Additionally, upon completion, the report will be forwarded to the appropriate chain (Performance Systems Branch Chief via the School Chief). If the findings warrant, notification by the local chain of command to FORCECOM and the Training Managers should be initiated for resource/funding support (see *Chapter 9*).

If determined as a result of the CAP, that course development resources be assigned, the PSB Chief will bring those recommendations forward for consideration (during prioritization of course development resources). This may occur through an after action report, or brief, to the Training Officer outlining mitigation strategies to address all problem areas reported during the CAP.

Follow-on course development efforts (if assigned) will result in a separate project plan for accomplishment of all work with associated timelines, resources required, and a draft Plan of Action and Milestones (POAM).

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7.3 – Classroom Observations

Introduction

Overview

This classroom observation process is a recommended strategy for ensuring the instructional integrity of courses (once implemented by the CG Training System). Conducting regular observations of the training process as it actually occurs can provide training centers with information regarding opportunities for continuous improvement. Additionally, it ensures the instructors are delivering the materials as designed, and that the design of instruction works for the learners (primary) and the instructors (secondary).

Purpose

The purpose of conducting classroom observations is to determine whether the instructional materials yield valid, reliable, and high fidelity training when delivered according to the instructional plan. The value it adds to the assessment process is that it provides you with a snap-shot of how the course is functioning, without the completion of a full document review (CAP).

The results of these classroom observations can be another trigger that a CAP be initiated (due to concerns of decreased instructional integrity observed), or that a course change form be submitted (see *Chapter 8*) for updating existing curriculum due to Major, Minor or Technical changes – but it can also be positive reassurance that the course is running as designed and learning is taking place.

Requirement

You are encouraged to conduct periodical classroom observations on any of the courses that you oversee. Classroom observations should begin after a course has been implemented for at least a year. These periodic observations are a proactive step in the course maintenance process. Other specific situations that require a classroom observation to occur may include:

- Receipt of a Curriculum Change Notification form (see *Chapter 8*)
- CAP has been tasked for the course, or
- Results of Level 3 evaluations identify a gap in teaching the desired/optimal performance

Note: *Execution of this process is highly limited by in-house resources, so consult with your local procedures or SOP on how this process may or may not be included in your overall course evaluation process.*

Process

Process Overview

Classroom observation can be assigned, or be conducted in a random/periodic manner for quality assurance purposes. No matter the reason, once decided upon the first step in the process is to identify who will do the observation.

Once identified, the observer should reach out to a school POC and notify them of their intent to visit. In doing so the school should ensure that a space is provided (in an unobtrusive location) for the observer to watch the instruction, provide them with all the instructional materials that support delivery of that particular lesson to review, and discuss the scheduling/delivery of all aspects of that particular lesson (from introduction through administration of performance tests).

During the process, the observer will use the checklist (*see Appendix V*) as a guide to determine; if the lesson is being delivered as originally designed, if it works for the instructor and students, and if the students are able to successful complete the performance test upon completion of the lesson.

After the observation is complete, this checklist can be used to generate a summary report noting any discrepancies, and discussed with the school and appropriate command for review.

***Note*:** *These checklists may be modified locally to follow local procedures/SOP; the importance being that this is conducted, if possible, as another quality assurance input.*

Observers

An observer can be a course developer, Master Training Specialist, course chief, school chief, or other designated person familiar with the ISD process.

Chapter 8

COURSE MAINTENANCE

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8.1 – Chapter Introduction

Overview

Synopsis

Once you have developed, implemented, and successfully evaluated a course, there is bound to be a time when you need to update or make revisions to it. This chapter provides instruction on the process for revising curricula.

When a SME/AP, Instructor, or Schoolhouse determines a curriculum update is needed, they should bring that information to the attention of Performance Systems Branch (PSB) Chief, or supervisor, detailing the change in order to determine 1) if the change is appropriate and necessary, and 2) the amount of Instructional Systems Design (ISD) support that will be necessary for each request.

Audience

Primary Audience: Coast Guard School Chiefs, Course Chiefs, Instructors, and other school staff that have the most current information on changes to their curriculum.

Secondary Audience: From the input received by the above primary audience, an Instructional Designer can then be consulted to oversee, manage, or assume the responsibilities for updates and course revisions.

Purpose

The purpose of outlining a standardized process for course maintenance is to ensure there is no loss of ISD integrity to the existing course by changes made without ISD oversight. This chapter provides a process from which localized procedures may be built off of to determine how you wish to handle updates and revisions to curriculum under your control. The most important factor is to insure that courses are not being changed or updated in-house, but that oversight and awareness of the need for this change is communicated to your local instructional designer, training officer or PSB.

NOTE: The curriculum change notification form is a tool to be used by PSB staff (or your local training officer/course developer) to evaluate the proposed change to see if appropriate, instructionally sound, and what resources are necessary to effect the change. Schools and instructor are NOT at liberty to make changes to their curriculum without ISD oversight; quality assurance of this happens through *Chapter 7, Classroom Observations*.

Overview, Continued

Inputs

Various factors can initiate an update or revision to a course, and that factor will determine the type of change. However, first and foremost you must have an approved and existing course (developed according to processes outlined within this SOP).

Some possible inputs to the update and revision process are:

- Changes to doctrine or policy
- Changes to RPQs
- New equipment or software
- Results of annual course review (*see Chapter 7*)
- Course Assessment Process (CAP) (*see Chapter 7*)
- Curriculum outline due for triennial review/update
- Results of classroom observations (*see Chapter 7*)
- Results of level two and three evaluations

Outputs

The outputs of this phase are going to be identical to the outputs of Chapter 5. Depending on how extensive the change, everything from Job Aids and Performance Tests to Instructor Guides could be changed, and therefore may be an output to this process.

- Updated course materials, aligned with new RPQs (major change)
- Updated course materials due to equipment and procedures (technical change)
- Editorial errors made to course materials by school staff (minor change)
- Updated curriculum outline (major change)

Overview, Continued

Change Types Definitions

The following definitions are used to categorize the type of change request:

Major Change: A major change to any course terminal performance objective, an increase in course length, or any change that requires additional resources. This type of change will result in submission of an updated Curriculum Outline for approval. Examples of this type of change include: Updated RPQs, NPP FEA (new course), and a process/product output change to Performance Test.

Technical Change: Any change to tactical or training-unique equipment or documentation originating in the program that affects curriculum. A technical change may or may not affect individual learning objectives (Enabling Objectives, EOs), but *does not* affect terminal performance objectives, course length, or resources. Examples of this type of change include updated references/policy, new equipment, and software/equipment upgrades.

Minor Change: A change to correct editorial and typographical errors, teachability, or safety. Examples of this type of change include: Spelling error, change in page number referenced in student text, new videos or images from COTS used in course delivery.

Additional Resources

There are additional resources available to assist you in making requests for course updates/revisions:

- *Appendix Y, WS-Y.1*: Curriculum Change Notification Form (blank worksheet)

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8.2 – Implementing Changes

Introduction

Overview

Using the curriculum change notification form in *Appendix Y*, the school will identify a possible change. Additionally, the course chief/school chief will review the change, and route the form through their appropriate chain of command for review/approval and prioritization of ISD resources, if necessary.

Steps

The process described below depicts the basic steps to follow when changes to course material are identified:

Step	Action
1	School (staff) identifies a need for course update
2	Curriculum change form forwarded through appropriate chain for review/approval.
3	Proposed curriculum change is reviewed by Performance Systems Branch (PSB), or local training officer/instructional design supervisor. If approved, ISD resources should be assigned based on type of change. **Local procedures for prioritization of resources & review/approval routing should be determined, for example:* **IF** / **THEN** Major Change: Assign ISD resource (course developer) to lead this project for course update. Technical Change: Assign resource, if available, to make changes throughout course materials or give permissions to curriculum chief to enable changes to be made. Minor Change: Request course chief to pen-and-ink these changes to materials, ask students to make necessary edits, or give permissions to curriculum chief – then these changes will then be incorporated into next curriculum-wide update by ISD resource.
4	If appropriate, ISD/course developer is assigned to oversee or lead course update/revision
5	Course revisions made (*according to processes outlined throughout this SOP for proper instructional design/development)*
6	Technical review by AP/SMS/School conducted
7	Approval of updated course by supervisor or PSB Chief.

Introduction, Continued

Example An example of the Curriculum Change Notification form is shown below.

WS-Y.1 CURRICULUM CHANGE NOTIFICATION
(ORIGINATOR COMPLETE BLOCKS 1 THROUGH 8 ONLY)

1. Originator's Name:	2. Course Name:	3. Request Date:
LCDR Allen	IOC (MS-603)	17FEB10

4. Type of Change:

☐ MINOR CHANGE	☒ TECHNICAL CHANGE	☐ MAJOR CHANGE
A change to correct editorial and typographical errors, teachability or safety.	Any change to tactical or training-unique equipment or documentation originating in the program that affects curriculum. A technical change may or may not affect individual lesson objectives, but DOES NOT affect terminal performance objectives, course length, or resources.	A major change to any course terminal performance objective, an increase in course length, or any change that requires additional resources.

5. Instructional Materials Affected (Check all that are known to be affected):

☒ CURRICULUM OUTLINE ☐ JOB AID ☐ PERFORMANCE TEST

☐ STUDENT GUIDE ☐ INSTRUCTOR GUIDE ☐ POWERPOINT

☐ OTHER (SPECIFY) _____

6. Describe what functionality or curriculum and lesson that this CR addresses:
Investigating Officer Course 340860
Curriculum Outline Exhibit (2) Texts and References.

7. Define problem or the need for this change: (Only one per change request. Attach additional sheets if necessary)
Current Curriculum Outline (C/O) fails to reflect specified texts & references ISSUED to students during each convening consequently references must be accurately exhibited in C/O as a consumable item which warrants continued funding.

8. Suggestion, Improvement or Recommendation: (Only one per change request. Attach additional sheets if necessary)
(See attached)

Review/Approval

9. School Chief Approval ☒YES ☐NO

Signature: Eric C. Allen **Title :** LCDR **Date:** 17FEB10

10. Training Officer / Local ISD or PSB Approval of above change ☒YES ☐NO

Signature: Michael R. Smith **Title :** LCDR/PSB **Date:** 20FEB10

Routed to Curriculum Development Branch for consideration during Prioritization Process

10. Prioritization Process Outcome

☐ ISD Resource Assigned ☐ Priority, but no resource currently available

☐ No resources assigned, with PSB oversight will work with School to address

Signature:

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Chapter 9

TRAINING MANAGEMENT

Table of Contents

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Introduction

Overview

Successful delivery of a course does not stop with the successful execution of the beta/pilot test. There are many management activities that take place to ensure the course is fully integrated into the training system. It is critical that these elements work efficiently to support the instruction and are not forgotten.

Audience

Primary Audience: This section of the SOP is for the branch chief, school chief, course chief, or training officer possible working in conjunction with a the FORCECOM Training Manager and/or Program Manager (and related programs).

Secondary Audience: Course developers, instructional systems specialists, master training specialists, and instructors.

Training and Performance Functions

SOP, Vol. 13 identifies five key training and performance functions:

- Instructor
- Instructional Designer
- Master Training Specialist
- Certified Performance Technologist
- Training Manager

With the exception of this chapter, the majority of this volume of the SOP is geared towards instructional designers – performance technologists might have assisted in the analysis of the performance problem; master training specialists have a role in tryout and evaluation of materials; and instructors are responsible for the execution of the instruction. The focus of this chapter is to provide Training Mangers (school chiefs, course chiefs, branch chiefs, etc.) the standards for ensuring their roles and responsibilities for each training and performance function are conducted and documented. See *SOP, Vol. 13* for more information on defining the roles and responsibilities.

Introduction, Continued

Process

The training management continues after the successful validation of the course and final revisions to instructional materials are made (as detailed in *Chapter 6: Implementation*). Follow-on activities include ensuring training functions are in place to support cost-efficient, professional, and student-centered instruction.

These management activities ensure that the schoolhouse is capable of producing confident, capable graduates in alignment with stakeholder requirements, expectations, and needs.

The checklist provided in *Appendix Z* is designed for evaluation of four strategic training management functions:

- Administration
- Staff
- Development
- Delivery

Key Training Results

The checklists provided in *Appendix Z* are included to ensure:

- Training system functions in place to support instruction.
- Required resources available, scheduled, and ready to support instruction.
- Instructors prepared to conduct training.
- Supervisors prepared to administer training.
- Instruction is:
  - Cost-efficient
  - Professional
  - Student-centered
  - In alignment with training system specifications
  - Sufficient to meet job performance requirements
- Planned revisions completed and the course is fully implemented within the training system.

Training Management Function: Administration

Overview

Training Administration has an often unheralded yet important role in efficient operation and maintenance of the training system. Without capable administration —including distribution of materials and scheduling of resources—the quality and value of instruction would be diminished. When student materials are not produced on time to an acceptable standard, the system's capability to provide professional, student-centered instruction is compromised. People with pay, leave, or berthing problems may not be fully engaged in their duties. If facilities and resources are not efficiently scheduled, training may be disrupted or cancelled, jeopardizing the ability of the Coast Guard to perform its missions.

Key Tasks for Administration

Training system administration includes the following key tasks:

- Administrative support for the production of documents such as training standards, curriculum outlines, instructor guides, and student materials
- Writing reports, letters, messages, and other correspondence
- Maintaining personnel, training, equipment, and correspondence records
- Providing student and staff administrative services
- Scheduling and tracking of resources and equipment, including calculation and monitoring of annual student throughput, scheduling students for classes, quota control, or classroom and equipment allocation
- Identifying health, safety, welfare and environmental hazards
- Assessing health, safety, welfare and environmental risks
- Implementing risk management strategies and monitoring their effectiveness
- Managing student resources

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Training Management Function: Staff

Overview

The managing of your training staff (instructors) is crucial for the training manager because for the vast majority of the time, it is the instructor that has the most contact with the students. It is the instructors that choose to follow or ignore instructor guides and is the instructors that are responsible for applying the same evaluation standards for every learner.

It is training management responsibility to ensure that instructors are competent, professional, and capable of maintaining a learner-centered environment. Classroom observations and the professional development opportunities are the means by which training mangers can have the greatest input on the instructors.

Key Tasks for Managing Instructors

Management of instructional staff includes the following key tasks:

- Scheduling an adequate numbers of instructors to support training requirements
- Confirm instructors are qualified and ready to deliver the instruction
- Ensures instructors maintain current expertise in the subject matter through operational participation, field observation, or specialized training
- Mandate and document professional development of its instructor staff
- Use classroom observations and Instructor Feedback Forms (IFF) as part of supervisory quality checks of instructor preparations, class preparations, and performance

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Training Management Function: Development

Overview

The management of instructional development is simply put the guaranteeing that Coast Guard Training System SOPs are used for the development and evaluation of instructional materials. Does the school or schools they are responsible for use the proper procedures for the creation, maintenance, and upkeep of their courses?

Key Tasks for Development

Management of instructional development includes the following key tasks:

- Determining if courses were created using the Coast Guard Instructional Design Model or similar industry-recognized, systematic approach to training
- Using an archiving system to store and retrieve program and curriculum development documents
- Writing, signing, and routing Curriculum Outlines for each of its courses
- Pursuing ACE accreditation for each of its courses
- Ensuring the school has current analysis documents (FEA, OA, JTA, etc.) or tasking memo for each of its courses
- Using a Course Assessment Process (CAP) to ensure instructor guides describe learning activities in sufficient detail to ensure consistent delivery of instruction
- Conducting Level 1 feedback
- Reviewing the results of Level 2 testing

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Training Management Function: Delivery

Overview

The training management delivery function includes the means or methods by which instruction is provided to students. Training management is responsible for making sure delivery systems are prepared and ready for use.

This means ensuring instructors are presenting the instruction as designed; computers, training software, training labs, mockups, simulators, etc. are operating as necessary; and the school has procedures for dealing with setting the students up for success.

Key Tasks for Delivery

Management of training delivery includes the following key tasks:

- Ensuring instructor guides are followed for all instruction conducted in the school
- Ensuring instructors and students have access to learning resource materials and program-related equipment and receive training in its proper use
- Ensuring suitable classroom space, labs, simulators, equipment, and materials identified in the curriculum outlines are functional
- Providing an orientation to students
- Remediating students that fails performance tests

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Appendix A

Job Aids for Project Management

Table of Contents

Use the following list to access the job aid for the task you want to complete.

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JA – A.1: Defining the Project Scope

Purpose	This is a job aid to help you define the deliverables and the evaluation criteria for each deliverable of the project. This job aid will also help determine the project sponsor, key stakeholders, and people who fill be using the deliverables. *Optional*: The project manager may also choose to develop a RACI Matrix, assigning responsibility for each deliverable, see *Appendix B*, *WS – B.1* for more information.
Who should use this JA	You should use this job aid if you are responsible for managing a resident training project. This may include: Coast Guard Performance Systems Branch managers, Instructional Systems Specialist Supervisors, and/or Project Leads.
When you should use this JA	Use this job aid after it has determined that a formal project management process is to be used. See Chapter 2 for greater instruction on whether formal Project management is necessary for any given project.
How to use this JA	Follow the steps as literally as is practical and in the sequence provided.
Worksheet	Use with *WS – B.1: POAM Template*

JA – A.1: Defining the Project Scope, Continued

Procedures

Step	Action
1	Determine who decides the scope of your project using the following questions: • When my project is done, who will judge the success of it? • Who is giving my project resources (funding, people, accomplished performers, etc.)? • Who has made my project a priority? • Who stands to lose the most if my project fails?
2	Interview project sponsors/ stakeholders to define the following: • List each deliverable. • List evaluation criteria for each deliverable (examples include quality, template, metrics, timeframe, etc.) • Be as specific as possible. *Do not assume anything*. Document everything. • If some deliverables are discussed but later dropped, be sure to list these in your **What Is // What Is Not Included** table. Doing so reminds people that you will not be producing what they initially expected.
3	Draft and confirm the scope with sponsors and stakeholders. *Example*: • *Email your draft scope section to the sponsors/stakeholders requesting a response confirming accuracy.* • *Revise any deliverables per feedback.* • *Include the revised scope definition in your POAM.* **The scope will be formally approved once the POAM is approved and signed off.*

JA – A.2: Writing the Project Objective Statement

Purpose	This is a job aid to help you describe in 28 words or less *what* the project will produce (deliverables), by *when* (schedule), with *what* resources (money/people/tools). Much like performance objectives, it helps keep all stakeholders on task towards the ultimate goal.
Who should use this JA	You should use this job aid if you are responsible for managing a resident training project. This may include: Coast Guard Performance Systems Branch managers, Instructional Systems Specialist Supervisors, and/or Project Leads.
When you should use this JA	Use this job aid after the project scope has been approved but before you have started the project schedule.
How to use this JA	Follow the steps as literally as is practical and in the sequence provided.
Worksheet	Use with *WS-B.1: POAM Template*

JA – A.2: Writing the Project Objective Statement, Continued

Procedures

Step	Action
1	Gather data. • The Project Manager confirms the preliminary project expectations regarding schedule, scope, and resources with critical project sponsors (e.g., the leader is funding the project, steering committee members).
2	Validate the draft POS. • The Project Manager partners with the core project team to write a draft POS. • A strong POS utilizes the following standards: ✓ Starts with a verb ✓ Is 28 words or less ✓ States what will be produced by when with what resources ✓ Does not use jargon or acronyms ✓ Should highlight the project's most critical aspect (e.g., deadline or budget cap)
3	Circulate the draft POS to project sponsors for feedback.
4	Secure approval of the POS. • The Project Manager includes the revised POS in the POAM • Final approval of the POS when the POAM is approved at the Project Sponsor level
5	Include approved POS in the POAM

JA – A.3: Creating a Project Schedule

Purpose	This is a job aid to help you create a project schedule. The project schedule is used to clarify *what* will be achieved by *when* and with *whom*. A project schedule includes both deadlines and milestones.
Who should use this JA	You should use this job aid if you are responsible for managing a resident training project. This may include: Coast Guard Performance Systems Branch managers, Instructional Systems Specialist Supervisors, and/or Project Leads.
When you should use this JA	Use this job aid after it has determined that a formal project management process is to be used and after the project scope has been approved
How to use this JA	Follow the steps as literally as is practical and in the sequence provided.
Worksheet	Use with *WS-B.1: POAM Template*

JA – A.3: Creating a Project Schedule, Continued

Procedure

Step	Action
1	Discuss and review the following items with your team members: • Project Objective Statement and Project Scope • Phases or categories of work (Analysis, Design, etc.)
2	Identify all tasks: • Agree on major phases/sub-phases of the project. • Organize the tasks under the phases/sub phases. o Before doing this activity, it helps to study how long similar projects took (task durations) in the past.
3	Assign task criteria: • Identify a deliverable (or output) for each task and specify the acceptance criteria (standard of performance). • Identify one owner for each task. The owner is responsible for the task completion and its criteria, though others on the team can assist in task completion as well. • Estimate the duration of each task.
4	Estimate the amount of time / target completion date for each milestone. ***Note**: Reference the Design Ratio Guidelines within the text of Chapter 2 (Determining the Project Schedule) to assist in allotting an appropriate amount of time for each phase.*
5	Document the milestone (phase) dates in your POAM.
6	Update the schedule (task durations, completion) per inputs / time dedicated or allotted to each phase and tasks to complete in each phase. • Use this to continue to create your detailed schedule for each task necessary for each deliverable and milestone.

RESULT: A schedule reflecting the path to project completion.

JA – A.4: Determining Roles and Responsibilities

Purpose	This is a job aid to help you write the Roles and Responsibilities section of your POAM and to clarify exactly *who* is responsible for *what* in your project. This job aid will also help you list the names of everyone who will play an important role in the project, along with key responsibilities within that role.
Who should use this JA	You should use this job aid if you are responsible for managing a resident training project. This may include: Coast Guard Performance Systems Branch managers, Instructional Systems Specialist Supervisors, and/or Project Leads.
When you should use this JA	Use this job aid after it has determined that a formal project management process is to be used and after the project scope has been approved
How to use this JA	Follow the steps as literally as is practical and in the sequence provided.
Worksheet	Use with *WS-B.1: POAM Template*

JA – A.4: Determining Roles and Responsibilities, Continued

Procedures

Step	Action
1	Review the summary descriptions of some key project roles. • *Using the table on the next page.*
2	Determine which roles apply to your project.
3	Determine which roles are not listed in the table, but need to exist for your project.
4	Write a description of each role not defined.
5	Review your list of roles with your project sponsor(s) and management to confirm your understanding of the roles unique to your project.
6	Include your roles and responsibilities table in your POAM.

Note: *Some people are considered "core members" of the project. For example, the instructional designers represent "core" team members.*

Others are considered "extended members" of the project. Extended members help only at certain times. For example, you might use a graphic artist during development, but not during analysis. The graphic artist is an extended team member.

Core team members should be involved in every aspect of the project. Extended team members only need to be kept informed of the issues directly impacting them as a resource (e.g., hours of work needed that week).

Use the table on the next page to help identify and define roles and responsibilities, you may want to indicate your core team members with an asterisk (*) on the POAM.

JA – A.4: Determining Roles and Responsibilities, Continued

Key Roles Defined

Use the role description table below to determine which roles are relevant to your project.

ROLE	DESCRIPTION
Project manager	Responsible for POAM creation/approval, overall project management, strategic communications, providing whatever the project team needs to deliver against POAM expectations, and setting priorities
Project lead	(*This role is sometimes the same person as the project manager*.) Responsible for tracking the progress of a project, overseeing change management, scheduling updates, and providing tactical communications and conflict resolution.
Executive sponsor	(*one person – typically the senior member*) Responsible for funding the project, confirming the project manager, ranking the priority of the project, ensuring continued resources, and offering strategic guidance.
Sponsor(s) / stakeholder(s)	(P*eople who have a stake in the success of the project; could include the group that the project will impact the greatest.)* Responsible for providing strategic guidance, setting priorities and ensuring resources are available.
Steering committee (*optional*)	(*Usually comprised of no more than eight people representing Project Leadership and Sponsors; however, not every project will have this role.*) Responsible for supporting the Project Manager by helping to facilitate strategic decisions and drive key support (funding, resources).
Instructional designers	Responsible for driving the analysis, design, development, implementation, and evaluation of the course development process.
Subject Matter Specialists (SMS)	Responsible for providing the technical integrity and oversight of the course, and consultation throughout the course development process.
Accomplished performers (ap)	(*People who are top performers with relevant field experience, which represents the target (primary) audience.*) Responsible for providing real world perspective and the audience voice.

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JA – A.5: Determining Project Constraints (Priority Matrix)

Purpose	This is a job aid to help you determine your constraints and priorities. The Constraints (Priority) Matrix is one part of the Assumptions and Constraints section of your POAM. Assumptions and constraints in the POAM highlight the things you assume to be true going into the project (the assumptions), and the things that everyone knows will present challenges during the project (constraints). The Priority Matrix is used to help you rank the schedule, scope, and resources so that the highest quality product is delivered. Additionally, if someone comes to you during the project with a change to one of these three areas, you can refer to the Matrix to determine a response and impact assessment.
Who should use this JA	You should use this job aid if you are responsible for managing a resident training project. This may include: Coast Guard Performance Systems Branch managers, Instructional Systems Specialist Supervisors, and/or Project Leads.
When you should use this JA	Use this job aid after it has determined that a formal project management process is to be used and after the project scope has been approved.
How to use this JA	Follow the steps as literally as is practical and in the sequence provided.
Worksheet	Use with *WS-B.1: POAM Template*

JA – A.5: Determining Project Constraints (Priority Matrix), Continued

Procedures

Using the table provided in your POAM template (*see Appendix B*) follow these steps:

Step	Action
1	Determine the priority for each area, ensuring that each column only has one "X". In other words, you must determine which area (scope, schedule, or resources) is Most Constrained, which is Somewhat Constrained, and which is the Least.
2	After Priority is determined, capture why you defined each as you did…using the language as in the template: • **xxxxx** is *most constrained* because … • **xxxxxx** is *somewhat constrained* because … • **xxxxxx** are *least constrained* …
3	Include your Priority Matrix to the POAM.

JA – A.6: Creating the Risk Analysis and Contingency Plan

Purpose	This is a job aid to help you create a risk analysis and contingency plan. The purpose of completing this job aid is to increase your awareness of what might derail your project, and to offer a solution to mitigate any negative impact should this event occur.
Who should use this JA	You should use this job aid if you are responsible for managing a resident training project. This may include: Coast Guard Performance Systems Branch managers, Instructional Systems Specialist Supervisors, and/or Project Leads.
When you should use this JA	Use this job aid after it has determined that a formal project management process is to be used and after the project scope has been approved
How to use this JA	Follow the steps as literally as is practical and in the sequence provided.
Worksheet	Use with *WS-B.1: POAM Template*

JA – A.6: Creating the Risk Analysis and Contingency Plan, Continued

Procedures

Follow these steps to analze the risk and create a contingency plan:

Step	Action
1	Recognize the difference between *Preventive Action* and *Contingency Plan*.
2	Meet with your team to identify known risks and predictable risks. Use the following questions as a guide for the discussion: • *What went wrong with a similar project? Can we talk to that Project Manager and/or team to find out?* • *Are there are trends in the environment (e.g., new technologies, mergers, cost reductions, etc.) that could negatively impact the project?* • *Are the scope, schedule, and resources subject to change? How solid are these aspects at project launch? What could be possible obstacles?*
3	Narrow this list down to the top five to six most predictable events that could occur that would impact your project.
4	Set aside the risks that didn't make "the cut" for future reference. • When you create the POAM, you may be able to reference these lesser known risks in the *Assumptions List* (see the ***Error! Reference source not found.*** section) or the *What Will Not Be Included* table (see the ***Error! Reference source not found.*** section).
5	For each risk, identify and document the following: • Likelihood of risk occuring (*high/medium/low*) • Potential negative impact to project (*high/medium/low*) • Difficulty of timely detection (*high/medium/low*) • Overall risk level based on the previous bullets (*high/medium/low*)
6	Meet with your project sponsors to communicate the risk analysis data from the previous step, making adjustments for additional insight and input they may have.

JA – A.6: Creating the Risk Analysis and Contingency Plan, Continued

Procedures, Continued

Step	Action
7	Create a contingency plan for each major risk considering the data provided by the project sponsors and team and the following critiera: • **Trigger**: *What is the trigger for this risk? What observation might indicate the risk will happen?* • **Owner**: *Who will own the trigger for each risk?* • **Preventive Action**: *What could we do today to possibly prevent this risk from happening in the future?*
8	Assign a “strong” performer to own the highest risks that could harm project most.
9	Share all risk analysis data and contingency plans with your team and project sponsor(s) to obtain consensus for the course of action. *Example: If there is a risk that Subject Matter Specialists may be deployed during Needs Analysis, factor the time for Contingency Planning into your schedule “just in case”.*
10	Include a *Risk Analysis* table and Contingency Plan table in your POAM.
11	Integrate the preventive actions and the contingency plan into your schedule as appropriate.

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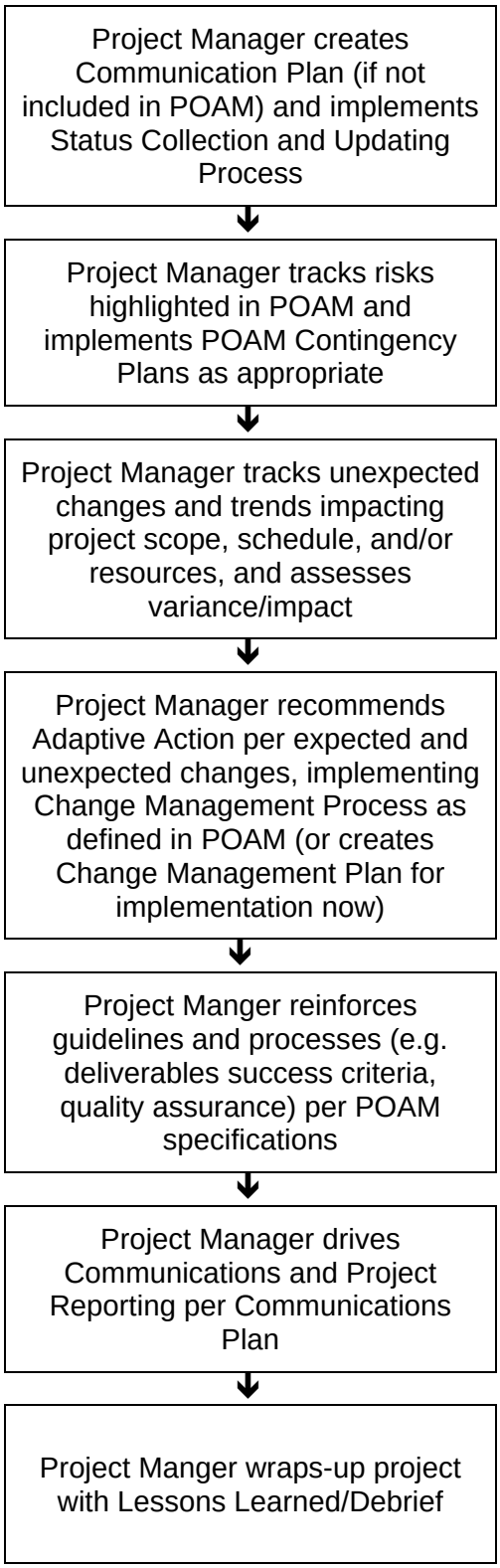
JA – A.7: POAM Implementation Process



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APPENDIX B

Worksheets for Project Management

Table of Contents

These worksheets are designed work in concert with the Project Management Job Aids presented in *Appendix A*. There is not a one-to-one relationship since not all jobs need a standard way of capturing the associated data.

The following worksheets have been provided to you for managing and tracking projects.

Worksheet Number	Title
WS – B.1	POAM Template
WS – B.2.A	Project Schedule Template (Example 1)
WS – B.2.B	Project Schedule Template (Example 2)
WS – B.3	Meeting Template

Worksheet Access

Samples of the worksheets are included in this appendix. Refer to the *SOP Downloads (Word Version)* page on TRACEN Petaluma's internet website for the most recent and usable copies of all Worksheets and Templates:
http://www.uscg.mil/hq/cg1/TracenPetaluma/SOP/default.asp

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WS – B.1: POAM Template

Instructions

Create a POAM that contains the nine elements discussed in Chapter 2. One such template is shown on the following pages, you can use this from which you delete and modify the content to fit your local procedures.

Job Aid, JA-A.5, provides additional guidance on completion of the Risk Analysis and Contingency Plan sections.

Course Name

Plan of Action and Milestones (POAM)

Executive Summary

DD Month Year

1. Summary of EPQs:

(if not an EPQ/RPQ driven course, then discuss task list, etc)

2. Project Plan and Timelines:

As per the following POAM, below is an explanation of the major milestones of the project with an estimated project completion date of Month Year.

- **Analysis –** Estimated completion date: Month Year
- **Course Design** – Estimated completion date: Month Year
- **Development –** Estimated completion date: Month Year
- **Implementation** – Estimated completion date: Month Year

3. Anticipated capability and resource constraints:

(Communicate early about parameters/constraints to project, including resourcing and funding needs)

WS – B.1: POAM Template, Continued

Project: Course Name

Project Objective Statement:

Project Scope:

Deliverable	Success Criteria
	•
	•
	•
	•

What is included	What is not included
•	•

WS – B.1: POAM Template, Continued

Project Schedule

Task	Start Date (Actual)	End Date (Actual)	Status	POC (Point of Contact)	Comments
ANALYSIS – MILESTONE					
DESIGN – MILESTONE					
DEVELOPMENT - MILESTONE					
IMPLEMENTATION - MILESTONE					

WS – B.1: POAM Template, Continued

Roles and Responsibilities:

Project Manager: **Name*, GS
Project Lead: * *Name*, GS
Project Team Members (Developers): * *Name* (s)

Key Stakeholders	
(Name	**Position**
*CDR *Name* (TO)	Executive Sponsor
*LCDR *Name*	Branch Chief
*ITCM *Name*	School Chief
*ITCS *Name*	Asst School Chief
* *Name*	Quality Assurance
*ITC *Name*	Primary CG POC
LT *Name*	Supervisor, IST
Name	Contractor Supervisor

Resource Requirements:

People –

Project Deliverable	Skills Required to Produce Deliverable	Individual(s) with Ideal Skill Set	Estimated Duration	Estimated Date
	•			
	•			
	•			

Budget –

Additional Comments:

WS – B.1: POAM Template, Continued

Project Assumptions:

The following assumptions were presented and approved at the DD MON YEAR kick-off meeting:

•

Project Constraints:

Area	Priority		
	Most Constrained	Somewhat Constrained	Least Constrained
Schedule			
Scope			
Resources			

- **xxxxx** is *most constrained* because …
- **xxxxxx** is *somewhat constrained* because …
- **xxxxxx** are *least constrained* …

WS – B.1: POAM Template, Continued

Risk Assessment / Contingency Plan:

Identified Risk	Potential Impact	Likelihood of Occurrence	Difficulty of Timely Detection	Overall Risk*

Identified Risk	Preventive Action	Contingency Action	Trigger	Owner

Quality Assurance:

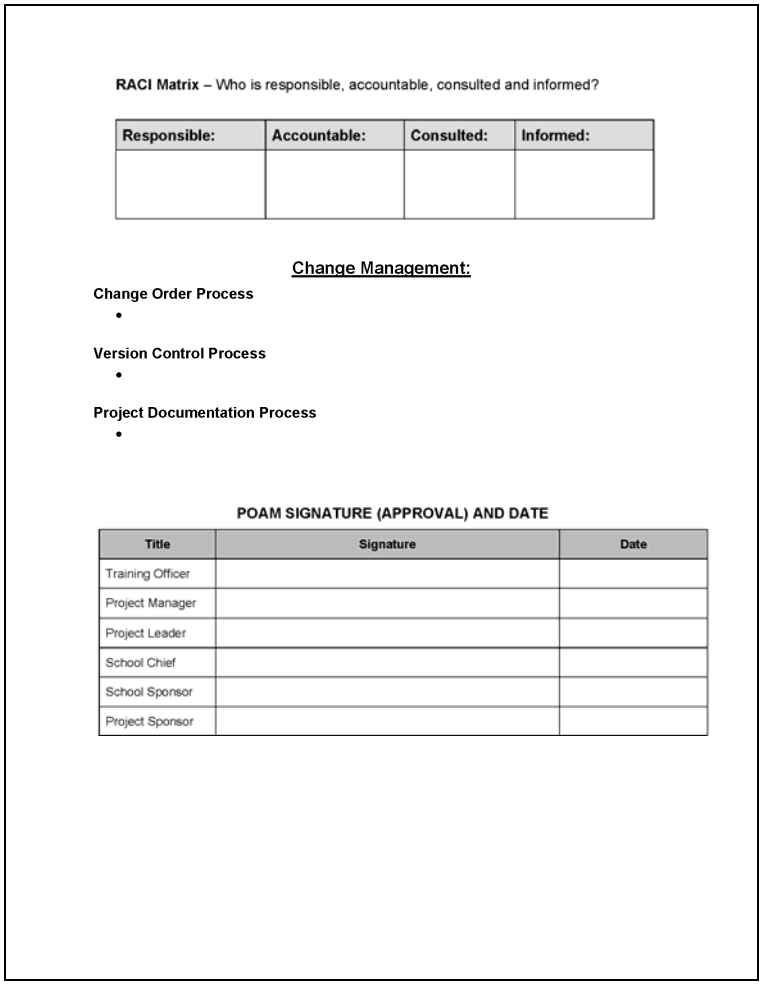
Quality Assurance Strategy	Responsible

WS – B.1: POAM Template, Continued

RACI

This is optional. If you choose to use this process, it would be presented in the POAM (as shown on this last page) as a table with information tied to the deliverables identified in "Project Scope." This is not always done –often dependant on the size of the team – many times captured within your project schedule. The list below is provided as additional guidance on what RACI stands for:

- RESPONSIBLE: The people responsible for the deliverable (or task).
- ACCOUNTABLE: The ONE person ultimately responsible for the deliverable (or task completion).
- CONSULTED: The people who might be consulted about the deliverable (or task) but who do not perform any development work.
- INFORMED: The people who need to be kept updated on progress; typically this is one-way communication (e.g., informing project sponsors of project status).



RACI Matrix – Who is responsible, accountable, consulted and informed?

Responsible:	Accountable:	Consulted:	Informed:

Change Management:

Change Order Process

•

Version Control Process

•

Project Documentation Process

•

POAM SIGNATURE (APPROVAL) AND DATE

Title	Signature	Date
Training Officer		
Project Manager		
Project Leader		
School Chief		
School Sponsor		
Project Sponsor		

WS – B.2.A: Project Schedule Template (Example 1)

Instructions

Using the Job Aid, *JA-A.3: Creating a Work Breakdown Structure*, collect all information necessary to create your project schedule, examples of which may look like those shown on the following pages.

PHASE / MILESTONE DATE

- Course Analysis (DATE):
- Course Design (DATE):
- Development (DATE):
- Implementation (DATE):

Status as of (DATE)		Project: (TITLE)				
POC: (NAME)		**Primary Audience: (RATING/SCHOOL)**				
Task Description		Start Date (Actual)	End Date (Actual)	**Status**	**POC**	**Comments**
ANALYSIS						
DESIGN						
DEVELOPMENT						
IMPLEMENTATION						

WS – B.2.B: Project Schedule Template (Example 2)

XX Resident Course Production Plan of Action and Milestones (POAM)						
Development Team & Primary POC's		*SMS Name*				
Project / Course Type: (A-School or C-School)		A-School				
Target Completion Date		DD MON YYYY				
1.0	**EPQ Alignment**					
		Total # EPQ's	**# NEW**	**# Changed**	**# Unchanged**	**Comments**
From 1.2	**EPQ's** (if applicable)					
Task No.	**Task Description**	**Start Date**	**Target Completion (Due Date)**	**Completion Status / Tracking**	**Milestone Actually Completed**	**Comments**
1.1	New/Revised EPQ's signed & received					*Date Signed*
1.2	Determine EPQ Changes					*(captured above)*
1.3	EPQ's reviewed against current References					
1.4	Developer / Resource assigned to implement changes					*Indicate that person in POC block on top of this POAM*
2.0	**Tasking Memo**					
2.1	Tasking Letter received from CG-132					*Date Received*
2.2	POAM & Cover Memo to TO for response to CG-132					*Communicates expected timeline to Program / RFMC to gain agreement*
3.0	**TPO / EO Development**					
3.1	Task List created from EPQ's and approved					
3.2	TPO's Written or Revised					
3.3	EO's Written or Revised					

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WS – B.2.B: Project Schedule Template (Example 2), Continued

XX Resident Course Production Plan of Action and Milestones (POAM)						
4.0	**Curriculum Outline Developed / Updated**					
Task No.	**Task Description**	**Start Date**	**Target Completion (Due Date)**	**Completion Status / Tracking**	**Milestone Actually Completed**	**Comments**
4.1	Curriculum Outline Drafted					*Can start as soon as TPO's are written*
4.2	Completion of Curriculum Outline					*After Validation testing (11.1)*
4.3	Curriculum Outline Routed					
4.4	Curriculum Outline sent to CG-132					*Will not be done until update is complete, validation testing finalized*
4.5	Curriculum Outline signed by CG-132					*Date we received copy of signed CO*
5.0	**Instructional Materials Updated/Revised**					
5.0	Performance Tests Created or Updated					*one PT per Task*
5.1	Lessons (IG's) Created or Revised					
5.2	*Task 5.2: N/A for Resident Development*					
5.3	Job Aids Created or Revised					
5.4	Materials to AP's for review					
5.5	Student Materials (SG's) created or revised					
5.6	Other:					

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WS – B.2.B: Project Schedule Template (Example 2), Continued

XX Resident Course Production Plan of Action and Milestones (POAM)						
11.0	**Implementation of Resident Courses** *(Note: Tasks 6.0 – 10.0 apply to Non-Resident Development)*					
Task No.	**Task Description**	**Start Date**	**Target Completion (Due Date)**	**Completion Status / Tracking**	**Milestone Actually Completed**	**Comments**
11.1	Validation of Course					*CO completed after validation (4.2)*
11.2	Course Materials Updated as a result of Validation					
11.3	Hand-off of new Course Materials to School for Implementation					
11.4	Scheduled delivery of new course					

End

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WS – B.3: Meeting Template

Applicability This template can be used and modified for use for your Alignment / Kick-off meeting, status meetings, or any other throughout the duration of your project.

Project: (NAME) **(DATE)**			
Project Objective: (STATE)			
Project Manager xyz		**Project Lead** xyz	
Key Stakeholders			
	Executive Sponsor		Primary CG POC
	Branch Chief		Supervisor, IST
	School Chief		Contract Mgr.
	Asst School Chief		Contract Team Lead
	Quality Assurance		Project Team Members, Developers

Agenda		
TOPIC	*NAME*	*TIME*
TRENDS		
NEXT STEPS		

APPENDIX C

Additional Examples for Project Management

Introduction

This appendix presents some additional examples based on the job aids presented in *Appendix A* and the suggested worksheets and templates presented in *Appendix B*.

There is not a one-to-one relationship since not all jobs need a standard way of capturing the associated data. However, there is at least one completed example for each suggested standard template for Project Management.

Table of Contents

The following items are included in this appendix:

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EX – C.1: Project Planning (POAM) Example

Information System Technician (IT) A-School
Plan of Action and Milestones (POAM)
Executive Summary
28 July 2009

1. Summary of EPQs:
The new IT-A course will cover a total of 24 EPQs; 5 of the EPQs are new, 4 EPQs were changed, and 15 EPQs remain unchanged from the previous quals.

2. Project Plan and Timelines:
As per the following POAM, below is an explanation of the major milestones of the project with an estimated project completion date (ready for validation) of September 2011.

- **Course Design** – Estimated completion date: **JUN 2010**
  This includes complete review or re-engineering of course design (content mapping)
- **Development** – Estimated completion date: **OCT 2010**
  This includes an update and development of course materials, including any new EPQs
- **Implementation** – Estimated completion date: **FEB 2011***
  *Dependent upon scheduling of implementation plan for roll-out of new IT-A course; for scheduled roll-out through FY 2011 will need coordination with TQC

3. Anticipated capability and resource constraints:
Multiple developer resources are assigned to this project, but even so will require expanded timelines to fully re-engineer and implement the new EPQ's throughout this process.

EX – C.1: Project Planning (POAM) Example, Continued

Project: IT-A School

Project Objective Statement: To re-engineer the IT-A School course, to provide training on tasks aligned with 2009 EPQ's, in a way that leverages innovative learning methods and technology as appropriate.

Project Scope:

Deliverable	Success Criteria
2009 EPQs translated into POs with PTs	• TPOs approved by *Name* and School (*Name*) • Instructor Guide and PT booklet • Student Guide and PT booklet • By June 2009
Job Aids and Related course support materials per PO	• Job Aid booklet or integration into Student Guide per design preference • Job Aid approval by *Name* and School (*Name*)
Revised Core IT curriculum (mapped to 2009 EPQs)	• Electronic prereq. skills translated into EO's and approved by *Name* and School (*Name*) • ET Course materials customized and streamlined
Course materials per PO / learning activity support	• Instructor and Student Guides • If design appropriate: Alternative Learning Technologies (eLearning) • Design drafts by Dec. 2010 (not production –ready)

What is included	What is not included
• 2009 EPQ alignment • Redesign of ET curriculum for IT-A School per analysis results	• New EPQs that emerge after project launch • Certification in technical areas

EX – C.1: Project Planning (POAM) Example, Continued

Project Schedule (*sample*)

Task	Start Date (Actual)	End Date (Actual)	Status	POC (Point of Contact)	Comments
ANALYSIS – MILESTONE JUNE 30, 2010					
Tasks Defined per EPQs	2 JUL 2009 (8/13/09 Kick Off Meeting)	18 NOV 2009 (11/1/09)	DONE	XXXX	Ahead of Schedule
DESIGN – MILESTONE OCT. 2010					
Task Analysis, Paradigms & Procedures Defined	18 NOV 2009 (11/1/09)	APR 2010	IN PROGRESS	XXXX	New AXXXX added; 1 Resource lost in April;
TPOS Approved	APR 2010	JUN 2010	IN PROGRESS		1 Resource added in May; 1 resource regained; New Certification requirement added (ASFSF+)
DEVELOPMENT - MILESTONE DEC. 30, 2010					
Curriculum Outline DRAFT	JUN 2010	AUG 2010		XXXX Design Team	
Performance Tests Created	JUN 30	OCT 2010			
Lessons (IG) Created/Revised	JUN 2010	OCT 2010		XXXX Design Team	
Job Aids Created/Revised	JUN 2010	OCT 2010			
IMPLEMENTATION - MILESTONE FEB. 25, 2011					
Curriculum Outline Complete	FEB. 2011	TBD		XXXX Design Team	

EX – C.1: Project Planning (POAM) Example, Continued

Roles and Responsibilities:

Project Manager: **Name*, GS
Project Lead: * *Name*, GS
Project Team Members (Developers): * *Name* (s)

Key Stakeholders	
(Name	**Position**
*CDR *Name* (TO)	Executive Sponsor
*LCDR *Name*	Branch Chief
*ITCM *Name*	School Chief
*ITCS *Name*	Asst School Chief
* *Name*	Quality Assurance
*ITC *Name*	Primary CG POC
LT *Name*	Supervisor, IST
Name	Contractor Supervisor

Resource Requirements:

People – Minimum 3 full time designers, 1 project leader, 1 project manager, 1 Quality Assurance, and required SMS and AP availability and expertise

Project Deliverable	Skills Required to Produce Deliverable	Individual(s) with Ideal Skill Set	Estimated Duration	Estimated Date
Revised ASD school – EPQs translated into tasks	DESIGNER: • ADDIE /ABCD – Analysis • MS Live Meeting	XXXX XXXX XXXX XXXX	3 Months	Fall 2009 – Winter 2010
TPOs and PEs	DESIGNER: • ADDIE /ABCD – Analysis/Design • MS Live Meeting		4 Months	Winter 2009 – Summer 2010
Curriculum Design	DESIGNER: • ADDIE /ABCD – Design/Development • MS Live Meeting		3 Months	Summer 2010 – Fall 2010

Continued on next page

EX – C.1: Project Planning (POAM) Example, Continued

Project Deliverable	Skills Required to Produce Deliverable	Individual(s) with Ideal Skill Set	Estimated Duration	Estimated Date
Development	DESIGNER: • ADDIE /ABCD – Design/Development		4 Months	Fall 2010 – Winter 2010
	GRAPHIC DESIGNER: Formatting, Graphics, TOC	TBD	1 Months	

Budget – Actual costs will not be known until the curriculum design is in place and it is clarified how certain skills will need to be taught, given which tools.

Additional Comments:

- XXXX is being phased out and XXXX just bought XXXX. The XXXX lab equipment at the school will need to be removed or replaced. Costs will be factored once learning strategy design requirements are clear.
- Some of the new EPQs could require new equipment for skill building. Costs will be factored once learning strategy design requirements are clear.
- Budget cost estimates will be presented to the Steering Committee for consideration during review of the draft curriculum design

Project Assumptions:

The following assumptions were presented and approved at the 13 AUG 2009 kick-off meeting:

- EPQs are final and approved and won't change
- Appropriate resources will be dedicated throughout project as determined by Project Management
- Project Manager – in consultation with Product Leader – has final sign-off for any changes that impact decision matrix
- No incremental changes will be made to the existing course prior to this re-engineering project completion
- This project will not execute short-term incremental course revisions
- Following the ABCD Design phase, existing course modules and/or module content will be leveraged for the new course curriculum (as appropriate)

EX – C.1: Project Planning (POAM) Example, Continued

Project Constraints:

Area	Priority		
	Most Constrained	Somewhat Constrained	Least Constrained
Schedule		X	
Scope	X		
Resources			X

- **Scope** is *most constrained* because we must meet the EPQ standards.
- **Schedule** is *somewhat constrained* because we do not want this project to drag on too long, however, if scope changes then the schedule will be negatively impacted. Scope still takes precedent over Schedule.
- **Resources** are *least constrained* and will be kept flexible, because this project is a top priority for Asdf School. Therefore, Accomplished Performers, Subject Matter Specialists, and other required resources will be provided upon request.

Risk Assessment / Contingency Plan:

Identified Risk	Potential Impact	Likelihood of Occurrence	Difficulty of Timely Detection	Overall Risk*
EPQ s Change	Minimal to High, depending on EPQ	Moderate	Moderate	Moderate
Resources Compromised	High	Minimal	Low	Low
Certification Required	High	High	Moderate	High

Continued next page

EX – C.1: Project Planning (POAM) Example, Continued

Identified Risk	Preventive Action	Contingency Action	Trigger	Owner
EPQ s Change	Course Chief maintains communications with Rating Force Master Chief	Course Chief escalates to Project Leader for Schedule impact	First discussion / rumor	*Name*
Resources Compromised	Strong team communications to monitor progress and "scope creep" by other projects	Seek additional resources if we lose a resource or partial resource	New project; resource is pulled away	*Name*
Certification Required	Course Chief maintains communications with Rating Force Master Chief	Course Chief escalates to Project Leader for Schedule impact; additional resources sought as appropriate	First discussion / rumor	*Name*

Quality Assurance:

Quality Assurance Strategy	Responsible
POAM Criteria Tracking	Project Leader (*Name*)
Deliverables Evaluation	*Name*
Technical Accuracy Evaluation	Course Chief *Name* , SMS Sign-Off
Formative Evaluation	Design Team (Category Leads) with Peer Review and SMS Sign-Off
Summative Evaluation	Validation Process with Design Team

EX – C.1: Project Planning (POAM) Example, Continued

Change Management:

Change Order Process

- Escalation (Chain of Command) for Change Requests should be followed.
- Every change request must be documented for communication to project sponsors using the following parameters:
    - Date of Change:
    - Description of Change:
    - Expected Impact of Change:
    - Rationale for Assessed Impact:
    - Recommendations to Mitigate Change:
    - Decision-Makers Regarding Change Approval:
    - Agreed upon Adaptive Action, if Any:
    - Change form must be approved by project manager and project leader
- Every Change Form will be stored in the Project Management folder for audit history.

Version Control Process

- Every file will be saved with the most recent date (mo day 10) in the shared folder per naming conventions.
- If content changes after final sign-off, the original document must be revised and saved in the folder "Revised Sign Off" next to the folder "Approved."
- Every month the design team will walk through an audit of version control for quality assurance.

Project Documentation Process

- Designers will adhere to design template protocols.
- Designers will compare templates one week into development for each new phase, to confirm interpretation of project documentation.

Additional Information – Communications Plan:

Status Updates

- Schedule revisited monthly and updated by Project Leader, with communication to Project Manager and Stakeholders
- Weekly status updates to Project mgr. and course Chief per progress
- Project Manager debriefs Exec. Sponsor on developments and progress verbally at staff meetings

Meetings

- Steering Committee Meetings Quarterly (or sooner if warranted)
- Design Team meetings held by Project Leader weekly
- Project Leader / School Communications Meetings quarterly (or sooner if warranted)

EX – C.1: Project Planning (POAM) Example, Continued

- Project Leader/Course Chief Updates Bi-Weekly (or sooner if warranted)

Reports

- Team members to send weekly status reports to project leader.
- Project Leader to send weekly status report to Project Manager and School Chief.
- Status Reports to be sent via email, in simple bullet format.

Web Files

- Shared file for design team
- Version Control defined by Project Leader
- Back up provided by designer xxxx

Escalation

- Design Team to escalate to Project Leader (Pxxxx) ASAP
- Project Leader to escalate to Project Manager (Rxxxx) ASAP

Responsibility Matrix (RACI):

RACI Matrix – Who is responsible, accountable, consulted and informed?

Responsible:	Accountable:	Consulted:	Informed:
xxxx(Project Leader) xxxx (Designer) xxxx (Designer)	xxxx (Quality) xxxx (Project Mgr.)	CDR Sxxxx ITC Jxxxx (Course Chief)	LCDR Lxxxx ITCM Wxxxx ITCS Dxxxx

POAM SIGNATURE (APPROVAL) AND DATE

Title	Signature	Date
Training Officer		
Project Manager		
Project Leader		
School Chief		
School Sponsor		
Project Sponsor		

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EX – C.2.A: Project Schedule (ET-A Sample)

Applicability Higher level project schedule for meeting project milestones.

Updated: 30 Sept 2010

ET Resident Course Production Plan of Action and Milestones (POAM)						
Development Team & Primary POC's	Beth Wikle, L3- project lead Rich Payne, GS, course developer ET1 Solari, Curriculum Improvement Team ET1 Smith, Curriculum Improvement Team ET2 Chang, Curriculum Improvement Team ETC Casey, CIT Supervisor					
Project / Course Type: (A-School or C-School)	A-School					
Target Completion Date	New Scope: September 2011 (for pilot course delivery, pending TQC coordination)					
1.0	**EPQ Alignment**					
		Total # EPQ's	**# NEW**	**# Changed**	**# Unchanged**	**Comments**
From 1.2	**EPQ's** (if applicable)	35	12	2	21	*See constraints concerning immediate implementation of all EPQ's.*
Task No.	**Task Description**	**Start Date**	**Target Completion (Due Date)**	**Completion Status / Tracking**	**Milestone Actually Completed**	**Comments**
1.1	New/Revised EPQ's signed & received				06/2009	
1.2	Determine EPQ Changes	01Jul09	01Aug09	100%	26Jul09	
1.3	EPQ's reviewed against current References	01Jul09	30Aug09	100%	15Jun10	*Completed curriculum-wide (for all EPQ's)*
1.4	Developer / Resource assigned to implement changes	N/A	01Aug09	100%	08Jul09	*Additional ISD resource added to project with scope change (May10)*
2.0	**Tasking Memo**					
2.1	Tasking Letter received from FC-51				02Jul09	
2.2	POAM & Cover Memo to TO for response to FC-51	15 Jul 09	01 Aug 09	100%	10Sep09	
3.0	**TPO / EO Development**					
3.1	Task List created from EPQ's (and approved)	26Jul09	Aug 2009	100%	22Jun10	*Submitted with this update for FC-51 approval.*

1-3

EX – C.2.A: Project Schedule (ET-A Sample), Continued

Updated: 30 Sept 2010

ET Resident Course Production Plan of Action and Milestones (POAM)						
3.2	TPO's Written or Revised	30Aug09 Phase III: Sep10	15Sep09 Phase III: Oct10	100%	29 Sept 10	
3.3	EO's Written or Revised	30Aug09 Phase III: Sep10	15Sep09 Phase III: Oct10	100%	29 Sept 10	
4.0	**Curriculum Outline Developed / Updated**					
Task No.	**Task Description**	**Start Date**	**Target Completion (Due Date)**	**Completion Status / Tracking**	**Milestone Actually Completed**	**Comments**
4.1	Curriculum Outline Drafted	15Sep09	Dec 2010	40%		*Draft TPO's submitted with this update for review.*
4.2	Completion of Curriculum Outline	31Dec10	Dec 2011			**Will not be completed / routed until all Phases of this development effort are complete.*
4.3	Curriculum Outline Routed	Jan 2012	Mar 2012			
4.4	Curriculum Outline sent to FC-51	Mar 2012	April 2012			
4.5	Curriculum Outline signed by FC-51					*Date we received copy of signed CO*
5.0	**Instructional Materials Updated/Revised**					
5.0	Performance Tests Created or Updated	15 Sep 09	Dec 2010	50%		
5.1	Lessons (IG's) Created or Revised	15Sep 09	Dec 2010	31%		*Phase I& II complete*
5.2	*Task 5.2: N/A for Resident Development*					
5.3	Job Aids Created or Revised	15 Sep 09	Feb 2011	80%		*Drafts completed, validation underway*
5.4	Materials to AP's for review	15 Sep 09	June 2011	40%		*Ongoing*
5.5	Student Materials (SG's) created or revised	15 Sep 09	June 2011	31%		*Phase &III complete*
5.6	Other:					

1-4

EX – C.2.A: Project Schedule (ET-A Sample), Continued

Updated: 30 Sept 2010

ET Resident Course Production Plan of Action and Milestones (POAM)						
11.0	**Implementation of Resident Courses** *(Note: Tasks 6.0 – 10.0 apply to Non-Resident Development)*					
Task No.	**Task Description**	**Start Date**	**Target Completion (Due Date)**	**Completion Status / Tracking**	**Milestone Actually Completed**	**Comments**
11.1	Validation of Course	Nov 2009	August 2011			*Phase I& II validated- 6/2010*
11.2	Course Materials Updated as a result of Validation	Dec 2009	September 2011			
11.3	Hand-off of new Course Materials to School for Implementation	Nov 2009	October 2011			*Phase I & II (new EPQ's) is handed off to school and incorporated into current curriculum – 6/2010*
11.4	Scheduled delivery of new course	Dec 2010	December 2011			

End

1-5

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EX – C.2.B: Project Schedule (ET-A Detailed Sample)

Applicability Use of a more detailed project schedule, maintained by project lead assists in tracking of project details (partial sample shown below).

Project:	**ET A Resident Course - Update**
Developer(s):	B. Wikle, R. Payne, ET1 Solari, ET1 Smith, ET2 Chang
Target Completion Date:	September 2011 (for pilot / validation, pending TQC coordination

Behind schedule
At risk
On schedule
Completed

M (Milestone) or Task No.	Task Description	Owner	Start Date	Target Completion Date	Status	Milestone Actual Completion Date	Comments
	Phase I - Alignment						
	Assign Developer / Resource(s) to implement changes (per Tasking Letter)	TO/CG	5/1/2010	5/1/2010		5/1/2010	*Done Richard Payne added to team*
	Prepare for Project Alignment meeting	MD/BW	5/4/2010	5/4/2010		5/4/2010	*and M. Dahms; followed up with LCDR*
	Develop preliminary list of; deliverables, resources, project constraints, assumptions, and any other issues that may need to be clarified or aligned with client.	BW	5/4/2010	5/4/2010		5/4/2010	*See Alignment Reports.*
	Send meeting agenda to attendees	BW	5/4/2010	5/4/2010		5/4/2010	*Completed*
	Conduct Re-Alignment Meeting	MD/BW	5/4/2010	5/4/2010		5/4/2010	*Completed*
	Document results of meeting / Alignment Report	BW	5/5/2010	5/14/2010		5/10/2010	*Sent to M. Dahms for review.*
M	**Project Alignment and Initial Project Plan signed off and approved**	MD	**5/14/2010**	**5/20/2010**		**5/12/2010**	**APPROVED.**
	Project schedule drafted	BW	5/3/2010	6/30/2010		7/3/2010	*Ongoing with completion date of 12/31/2010.*
	Draft POAM in response to Tasking Letter	MD	6/1/2010	6/30/2010		6/20/2010	*Primary Responsibility: CG Management*
	Submit POAM & Cover Memo to TO for response to FC-51	PM/CG	6/30/2010	7/15/2010		8/1/2010	*Primary Responsibility: CG Management*
M	**Approval of POAM**	CG	7/15/2010	8/30/2010		8/27/2010	Approved by FC-51, LCDR Pearson (and RFMC), via email confirmation
	Phase II - Task Analysis (Major Accomplishments)						
	Determine EPQ Changes (new, changed, deleted, no change) - Complete Curriculum Review	IST/CIT	5/3/2010	5/7/2010		5/7/2010	*ETCS Roquemore, ETC Casey, ET1 Solari, ET1 Mason, ET1 Smith, R. Payne, and B. Wikle met and finalized the list.*
	Interview AP's/SMS's for MA's	ISD/CIT Team	5/3/2010	5/7/2010		5/7/2010	*Interviews have been completed for all new tasks.*
	Draft MA's	ISD/CIT Team	5/3/2010	5/7/2010		5/7/2010	*Completed and documented on the SS1.*
	Obtain list of accomplished performers (AP) and/or Subject Matter Experts (SME) from client if not already provided.	ISD/CIT Team	5/3/2010	ongoing			Ongoing. We will be validating all of the tasks with additional Aps/SMS in the field.
	Validate MA's with AP / stakeholders	ISD/CIT Team	5/7/2010	5/14/2010		5/10/2010	All stakeholders have reviewed.
	Revise MA's - Draft NPP Summary Sheets (for ABCD design process)	ISD/CIT Team	5/7/2010	5/10/2010		5/10/2010	
	Submit NPP SS#1 - MA's for approval	ISD/CIT Team	5/10/2010	5/21/2010		5/18/2010	Sent to M. Dahms for review.
	Re-submited NPP SS#1 for approval	ISD/CIT Team	5/21/2010	5/28/2010		5/18/2010	Sent to M. Dahms for review.
M	**Approval of Major Accomplishments**	CG	**5/21/2010**	**5/28/2010**		**6/7/2010**	***Approved by M. Dahms***
	Phase II - Task Analysis, (Task List)						
	Confirm AP's for Task Analysis	ISD/CIT Team	5/3/2010	5/14/2010		5/14/2010	Documented on the Draft Task List.
	Draft task list from EPQ's and grouped under MA's	ISD/CIT Team	5/10/2010	5/14/2010		5/14/2010	***Finalizing draft list of tasks from EPQs with CIT team. B. Wikle will sentd to L-3 for review.***

EX – C.2.B: Project Schedule (ET-A Detailed Sample), Continued

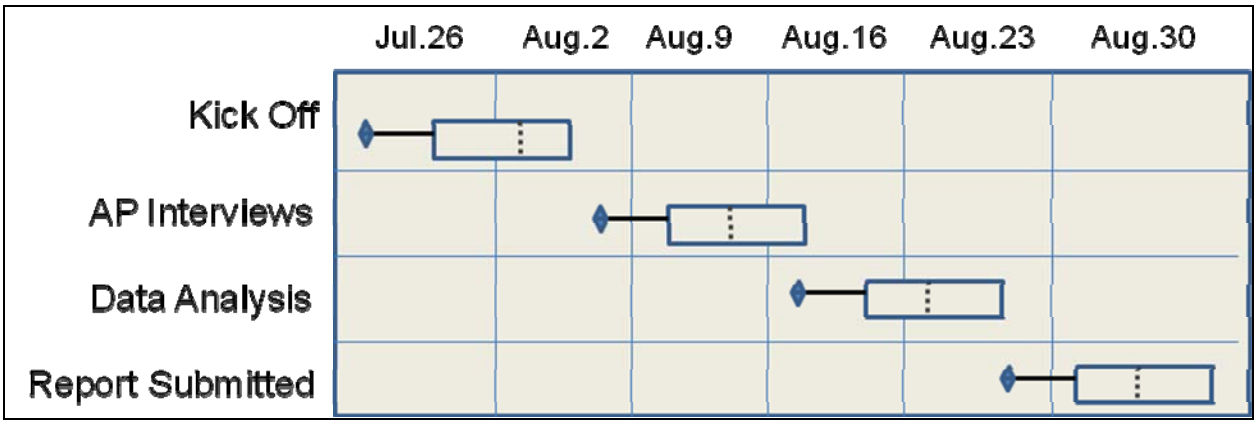
	Interview AP's/SMS's: Determine tasks	ISD/CIT Team	4/25/2010	5/14/2010		5/14/2010	Interviews for entire team have started. Interviews to continue through 5/14/2010.
	Validate draft Task list with AP / stakeholders	ISD/CIT Team	5/3/2010	5/14/2010		5/14/2010	*ETCS and Chief have reviewed this work.*
	Draft NPP SS#3	ISD/CIT Team	5/14/2010	5/28/2010		5/27/2010	Completed and handed into K. Jensen on 5/21/2010.
	Finalize Task List from EPQ's and submit	ISD/CIT Team	5/21/2010	5/28/2010		5/28/2010	*Handed to M. Dahms 5/27/2010*
M	**Approval of Task List**	M. Dahms	6/7/2010	6/7/2010		6/7/2010	*M. Dahms approved task list*
M	**NPP SS#3 Approved**	CG	6/7/2010	6/7/2010		6/7/2010	Sign-off of NPP SS#3
	Stakeholder meeting	MD/BW	5/27/2010	5/27/2010		5/27/2010	
	Assign ET Instructors to Project	Chief Casey	5/27/2010				One instructor for each unit (10 or 11)
	Schedule JAWS workshop for instructors and location	Chief Casey	5/27/2010				Scheduled for 6/30-7/1/2010. P. Robbins and M. Dahms
	EPQ reference changes	Chief Casey	5/27/2010	6/15/2010			ETCM Jackson announced references changing at TO meeting.
	Develop plan for collecting the detailed task data SS4s	ISD/CIT Team	5/10/2010	6/30/2010			*233 Tasks as of 6/14/2010; R. Payne/SINS/AIS; ET1 Smith CRYPTO/CCTV; ET1 Solari HF Tranceiver/Antenna; B. Wikle A-D and VHF Tranceiver/Antenna*
	Begin AP interviews for collecting task data for SS4s	ISD/CIT Team	5/20/2010	7/1/2010			Ongoing
	Draft NPP SS#4's from interviews	ISD/CIT Team	5/20/2010	7/2/2010			Ongoing
	Validate task data with AP's / SMS's	ISD/CIT Team	5/21/2010	7/3/2010			Ongoing
	Review NPP SS#4 and submit for approval - Packet A	BW	5/22/2010	7/4/2010			*6/15/2010: SS4s for SINS/AIS, Test Equipment, Connectors, VHF Transceiver, VHF Antenna, and Direction Finder. Approximately 60% of the tasks.*
	Review NPP SS#4 and submit for approval - Packet B	ISD/CIT Team	5/22/2010	7/4/2010			*SS4s for Safe environment, HF Transceiver, HF Antenna, Documentation, Cryptographic, and CCTV. Approximately 40% of the tasks.*
	Review NPP SS#5 and submit for approval	ISD/CIT Team					n/a
	NPP SS#4 Approved	CG					

Pre-Design (Task Step Data)							
	Gather step-level description from interviews with AP's / SMS's	ISD/CIT Team	6/28/2010				
	Pre-Design WS1 drafted for all tasks	ISD/CIT Team					
M	**Pre-Design WS#1 Approved**						IAW QMIM
	Draft TPO's using Task Data collected	ISD/CIT Team					*One per TPO*
	Review all TPOs and submit for approval	ISD/CIT Team					
M	**TPO's Approved**						IAW QMIM
	Drafts Performanve Tests	ISD/CIT Team					
	Edits to Performance Tests, as needed	ISD/CIT Team					
	PT's printed for school (sent to print shop)	ISD/CIT Team					
M	**Performance Tests Approved**	CG					IAW QMIM
	Draft Job Aids (as needed)	ISD/CIT Team					
	Edits to Job Aids, as needed	ISD/CIT Team					
	Job Aids printed for school (sent to print shop)	ISD/CIT Team					
M	**Certification of technical accuracy of Job Aids**	School/ AP					

EX – C.3.A: Gantt Chart "Box" Schedule

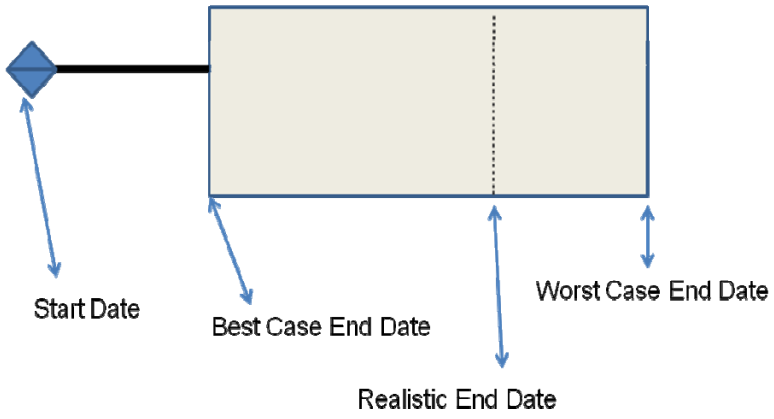
Applicability

The "box" schedule below displays a bar timeline with high-level start/completion dates.



Source: http://chandoo.org/wp/2010/07/09/gantt-box-chart-proposal/

The image below describes the boxes displayed in the Gantt chart example above.

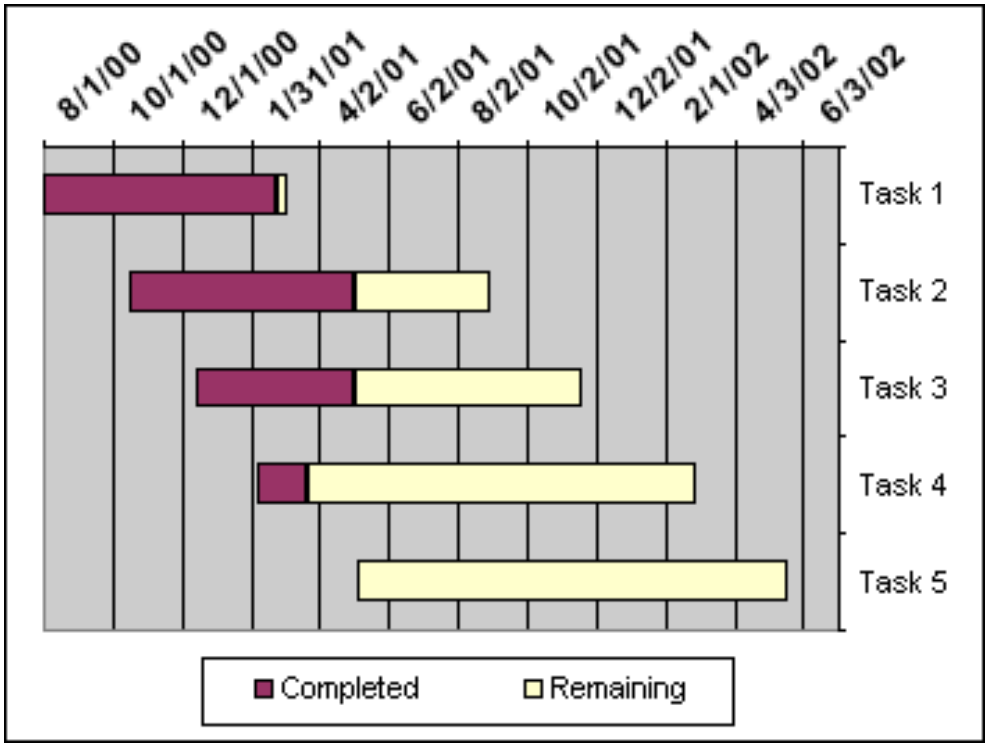


EX – C.3.B: Simple Data Gantt Chart

Applicability

The sample Gantt Chart below shows the timeline along the top of the chart, the tasks listed on the far right, and color-coded bars depicting completion and in-progress status per task.

TOOLS: Gantt Charts can be created in many software applications, including Visio, Excel, MS Project, to name a few.



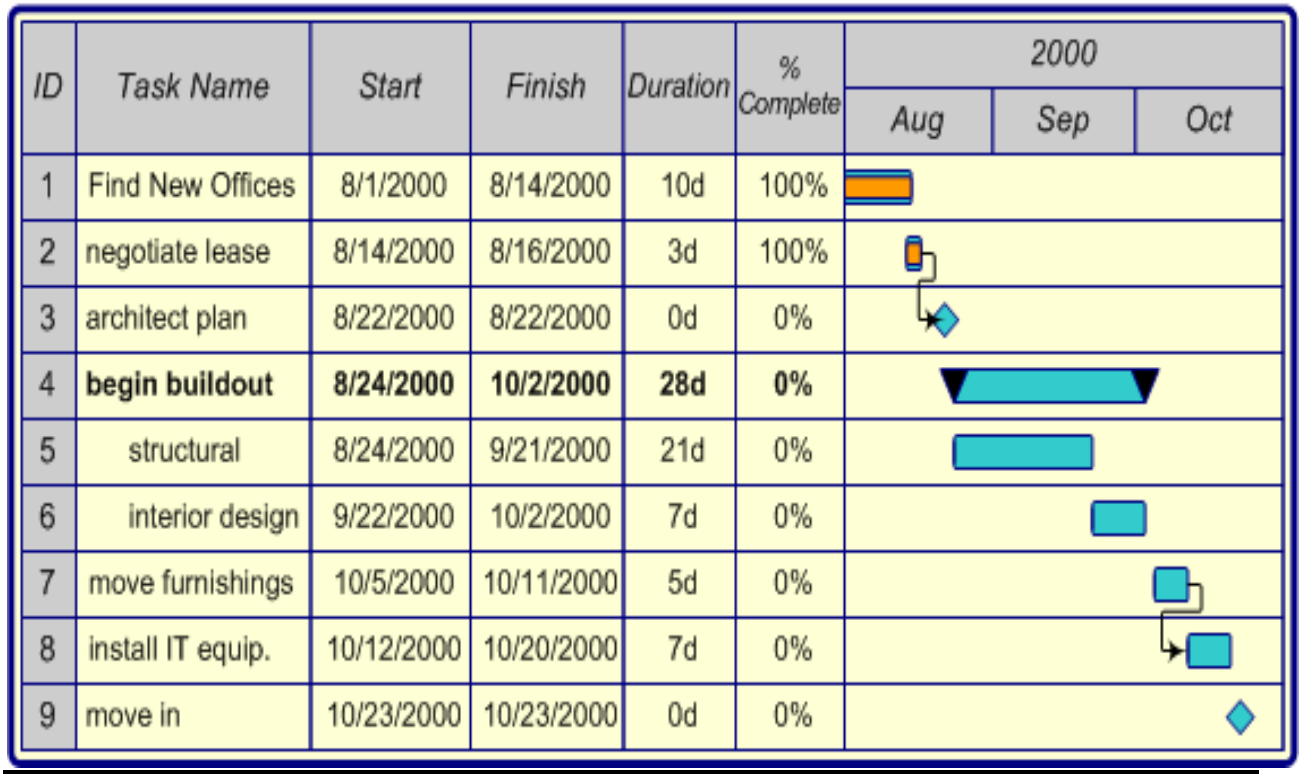
Source: http://office.microsoft.com/en-us/visio-help/communicate-schedule-details-with-a-visio-gantt-chart-HA010147271.aspx

EX – C.3.C: Traditional Data Gantt Chart

Applicability

The sample Gantt Chart below shows the timeline in two columns – START DATE and FINISH DATE as well as displays the timeline in bar format. The tasks are listed in the far left column, in sequence. Duration per task is also captured in a separate column, and there is a column to track percentage of completion. In some instances, projects cannot be tracked using percentages as it is difficult to quantify and assess the percentage of the project completed.

Note: *Sometimes people choose to highlight only the table (task/start and finish columns) and omit the bar chart on the far right. You can use whatever approach works best for your skills, your audience, and your project.*



ID	Task Name	Start	Finish	Duration	% Complete
1	Find New Offices	8/1/2000	8/14/2000	10d	100%
2	negotiate lease	8/14/2000	8/16/2000	3d	100%
3	architect plan	8/22/2000	8/22/2000	0d	0%
4	**begin buildout**	**8/24/2000**	**10/2/2000**	**28d**	**0%**
5	structural	8/24/2000	9/21/2000	21d	0%
6	interior design	9/22/2000	10/2/2000	7d	0%
7	move furnishings	10/5/2000	10/11/2000	5d	0%
8	install IT equip.	10/12/2000	10/20/2000	7d	0%
9	move in	10/23/2000	10/23/2000	0d	0%

Source: http://office.microsoft.com/en-us/visio-help/communicate-schedule-details-with-a-visio-gantt-chart-HA010147271.aspx

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EX – C.4.A: *Managing the Project* – Status Collections, Communications, and Updating (Example 1)

Applicability

One example of a project manager's strategy for collecting, communicating, and updating project status was provided within Chapter 2, the following are some additional examples.

Expectation	Owner	Description
Schedule should be updated weekly and re-distributed after each milestone	Project Leader	Email attachment to Project Management / Key Stakeholders / Project Team
Steering Committee should meet once a month	Project Manager	Face-to-Face meeting in Conference Room for decision-making and updates
Project Team should meet once a week to ensure change management, project tracking	Project Leader (With All Team Members)	Face-to-Face meeting on base for discussion of any change management issues, successes, challenges, etc.
Unexpected Surprises requiring Urgent Action	Project Leader	Escalate all matters to Project Leader, who will implement change management process as defined.

EX – C.4.B: *Managing the Project* – Status Collections, Communications, and Updating (Example 2)

Status Updates

- Schedule revisited monthly and updated by Project Leader, with communication to Project Manager and Stakeholders
- Weekly status updates to Project manager and Course Chief per progress
- Project Manager debriefs Executive Sponsor on developments and progress verbally at staff meetings

Meetings

- Steering Committee Meetings Quarterly (or sooner if warranted)
- Design Team meetings held by Project Leader weekly
- Project Leader/School Communications Meetings quarterly (or sooner if warranted)
- Project Leader/Course Chief Updates bi-weekly (or sooner if warranted)

Reports

- What type of reports will we create, who will create them, and who will receive them?
- What content and level of communication is appropriate for whom?
- How detailed should reports be and in what format?

Escalation

- Design Team to escalate to Project Leader ASAP

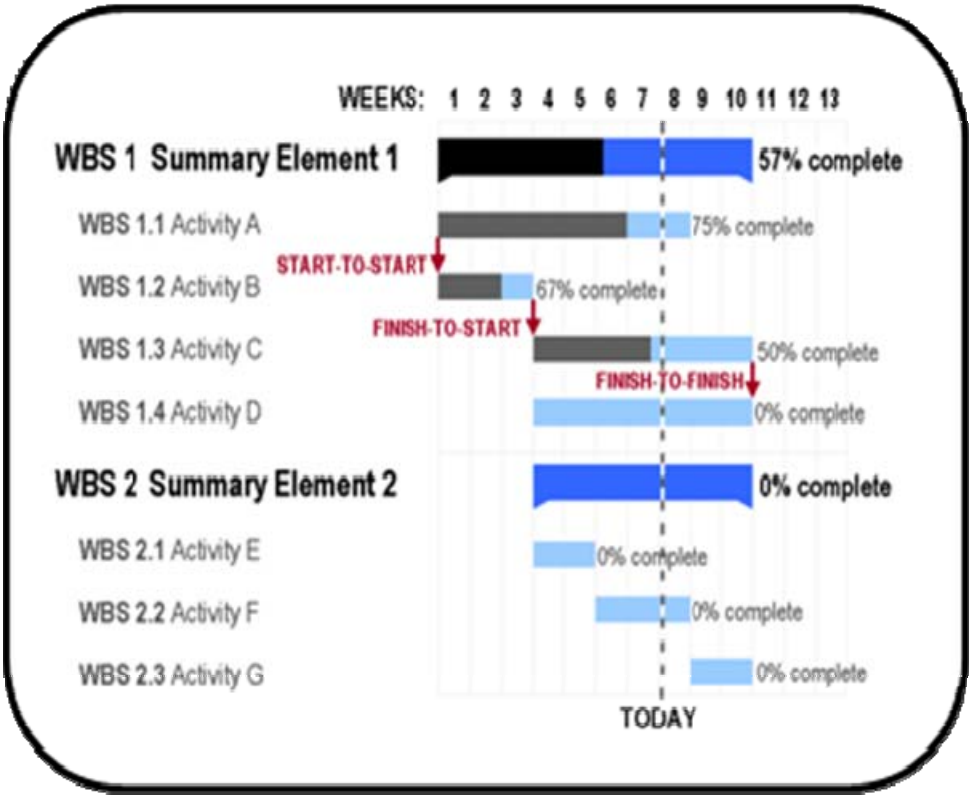
EX – C.4.C: *Managing the Project* – Status Collections, Communications, and Updating (Example 3)

Information similar to the below are often the details used in tracking the project on your project schedule.

Task	Est. Duration	Target Start Date	Actual Start Date	Target Finish Date	Calculated New Finish Date	Actual Finish Date
Create XYZ job aid	15 days	10 APR	13 APR	28 APR	2 MAY	1 MAY
Design logo	2 days	12 APR	15 APR	15 APR	18 APR	22 APR

EX – C.4.D: *Managing the Project* – Status Collections, Communications, and Updating (Example 4)

This example of a Gantt chart schedule is another way to present the information discussed in *Part 1: Planning the Project: Project Schedule* section of Chapter 2. It is presented here, because schedules will need to be updated in detail during status collection and updating.



Source: http://en.wikipedia.org/wiki/File:GanttChartAnatomy.png

APPENDIX D

Tip Sheets for Project Management

Table of Contents

Use the following listing to access the specific topic you are interested in learning more about.

Tip Sheet Number	Title
	No supplemental Tip Sheets exist to support Project Management at this time.

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APPENDIX E

Job Aids for Analysis Phase

Table of Contents

These job aids are designed to work in concert with the Analysis phase worksheets presented in *Appendix F*. Use the following listing to access the job aid for the task you want to complete.

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JA– E.1: Collect Task Details

Purpose

This is a job aid to help you identify specific performance information that is required for each task. The purpose of this job aid is to assist in collecting and recording on all relevant information about how to perform a task correctly.

Who should use this JA

You should use this job aid if you are an instructional designer or course developer responsible for conducting the Analysis phase for a resident instructional program. Ideally, you are a graduate of the Coast Guard Course Designer Course (CDC) or the SABA Knowledge Service Peak Performance System workshops (previously known as Accomplishment-Based Curriculum Development (ABCD) workshops).

When you should use this JA

This job aid should be used after you have validated your source analysis.

Entering Assumptions

To ensure task performance accuracy, the best way to obtain task details and associated step data is through interviews and observations of APs and SMEs. Use of this job aid assumes:

- You have read Chapter 3, Section 3.2 Task Analysis, Collect Task Details
- You have access to the source analysis
- Access to either:
  - Accomplished Performers (APs) for interviews and to observe task performance, *or*
  - Subject Matter Experts (SMEs) or other designated technical reviewers for task data validation

Reference Source for JA

The primary sources for the following information are:

- Making Instruction Work, by Robert F. Mager, CEP Press, 2005
- USCG Training System SOP, Vol. 6, Curriculum Outline, Section: Units of Instructions, TPOs and EOs, pages 22 – 26 and Appendix A: Job Aid for Writing a TPO

How to use this JA

Using the validated task listing from your Source Analysis, you will use this job aid to collect the task details data and record the results of the data collection onto worksheet WS - F.1.

JA – E.1: Collect Task Details, Continued

Format The worksheet below aligns with the steps of the job aid on the following pages.

WS-F.1	Task Analysis – Task Detailing		
Project	Step 1		
Designer	Step 1	Date	
Task	Step 2	Task Code	Step 2
Source Analysis	Step 2		
References		Equipment Required	
Step 3		Step 3	
General Performance Support Decision for Course	☐ Job Aid ☐ Job Aid with Extensive Training ☐ Job Aid with Introductory Training ☐ Train to Memory,	Step 4	
Steps (Enabling Objectives)		Prerequisite Knowledge	
			Step 5
	Step 6 - 7		

JA – E.1: Collect Task Details, Continued

Instructions

Step	Action
1	**Enter** in the **Project**, the **Date** the worksheet is completed and the name of the instructional **Designer/Developer(s)** completing the worksheet.
2	**Copy Task Statement** and **Task Code** from the analysis. **Enter** the **name** of the analysis in the **Source Analysis** block.
3	**Ask the AP or SME to identify** the needed **Equipment / Tools** to perform the task, and the **References** required to complete the task. **Enter** responses into their corresponding blocks of data.
4	**Refer** to the Source Analysis for the **task recommendations** and **check** the corresponding block
5	**Ask** the AP to **identify any steps that are "at strength"** in the target population. That is, identify any steps that the performer must already know how to perform correctly in order to enter the training. **Enter** the results in the **Prerequisite Knowledge** data block on the worksheet.
6	**Ask the AP to list** the **Task Steps** in the order that they must be performed. **Enter** the results.
7	**Ask** the AP to **review** the steps with you from the start of the task to the output (completion of the task); **make** any needed adjustments.
8	**Repeat** this process (Step 1 through Step 10) for every task in the source analysis. Each task from the Source Analysis will have a completed WS-F1.
9	**Validate** the Task Details worksheet for accuracy and completeness by reviewing with AP(s) or with the designated technical reviewer(s) defined in the Project Plan / POAM.
10	**Review** with the project manager and/or your manager/supervisor.

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JA – E.2: How to Develop the Target Audience Profile

Purpose

This job aid provides the instructions to help you determine the *entering* key characteristic about the learner. The target audience profile should include every variable that might affect the learning outcome. These variables could include such items as: reading abilities, language skills, learning styles, educational levels, cultural influences, or relevant experience with the subject matter.

The results from this assessment provides you with the needed data to design the training tailored to the needs of your audience by making the best use of particular instructional strategies that may be better suited to one target population over another.

Remember, you goal is to gather information about the learner "as they are" not as you or someone else wants them to be. By doing so, the training can be molded to the entering characteristics of the learner (their aptitudes, attitudes, existing skills and knowledge, etc.), increasing the likelihood of a successful learning event.

Who should use this JA

You should use this job aid if you are an instructional designer or a course developer responsible for conducting the Analysis phase for a resident instruction program. Ideally you are a graduate of the Coast Guard Course Designer Course (CDC) or the SABA Knowledge Service Peak Performance System workshops (previously known as Accomplishment-Based Curriculum Development (ABCD) workshops).

When should you use this JA

This job aid should be used after task analysis has been completed (see JA-E.1).

Associated Worksheet

To help you use a standard and systematic way to capture the results of the target audience analysis process, a Target Audience Profile worksheet (WS – F.2) has been provided. An image of WS-F.2 can be found in **Appendix F** and a completed example of WS-F.2 is included in **Appendix G.**

Refer to the *SOP Downloads* page on TRACEN Petaluma's intranet web site for the most recent and usable copies of all worksheets and templates: http://cgweb.tcpet.uscg.mil/t_div/cdt/

JA – E.2: How to Develop the Target Audience Profile, Continued

How to use this JA

To tailor your training to the needs of your target audience, you will need to collect data about specific abilities, attitudes and preferences. Use pages 1 through 4 on WS – F.2 to capture this type of essential information about your audience.

See Tip Sheet, TIP-H.5: Target Audience Characteristics - Design Factors found in *Appendix H* for more information regarding the relationship of each target population factor and the impact it could have to designing the resulting instructional program.

Interviews and observations of potential students are the most reliable sources of audience information. However access to potential students is not always possible. Consequently, you may need to have access to individuals performers, SMEs, supervisors, etc., who can accurately describe the current learner's characteristics and capabilities. Additionally, when updating existing courseware, the current instructors may also be a good source for target audience data.

Entering Assumptions

Use of this job aid assumes:

- You read Chapter 3, Section 3.3, Target Audience Profile.
- Completion of the work defined in the previous job aid found in the Analysis phase: JA – E.1.
- Access to conduct interviews and/or observations with the target population or alternate data source.
- You are familiar with the data collection method of interviewing and can develop any specific interview questions to obtain the audience/learner data associated with your project that may not be pre-defined on WS – F.2, as needed. See *Appendix H – Analysis Tip Sheets, Tip – H.1: Data Collection Methodologies* for more information regarding using the interviewing method.

JA – E.2: How to Develop the Target Audience Profile, Continued

Format

The worksheet below aligns with the steps of the job aid on the following pages (pages 1 and 2 of WS-F.2)

WS-F.2	Target Audience Profile		
Project			
Designer		Date	
Primary Audience Relevant or Key Characteristics			
Data Sources(s)			
Job		Job Specialty	

Step 1

Section 1 - Aptitudes / Abilities		
Current knowledge of tasks/work or subject matter area	High / Average / Limited / None / Unknown	Additional Details
Relevant background and experience	High / Average / Limited / None / Unknown	Additional Details

Step 2

Section 2 - Tools and Prerequisite Skills
Specific tool(s) or prerequisite skills abilities
Specific tool(s) or prerequisite skills deficiencies

WS-F.2 – Target Audience Profile

WS-F.2	Target Audience Profile		
Project			
Designer		Date	
Primary Audience Relevant or Key Characteristics			
Other deficiencies that may require special attention			

Step 3

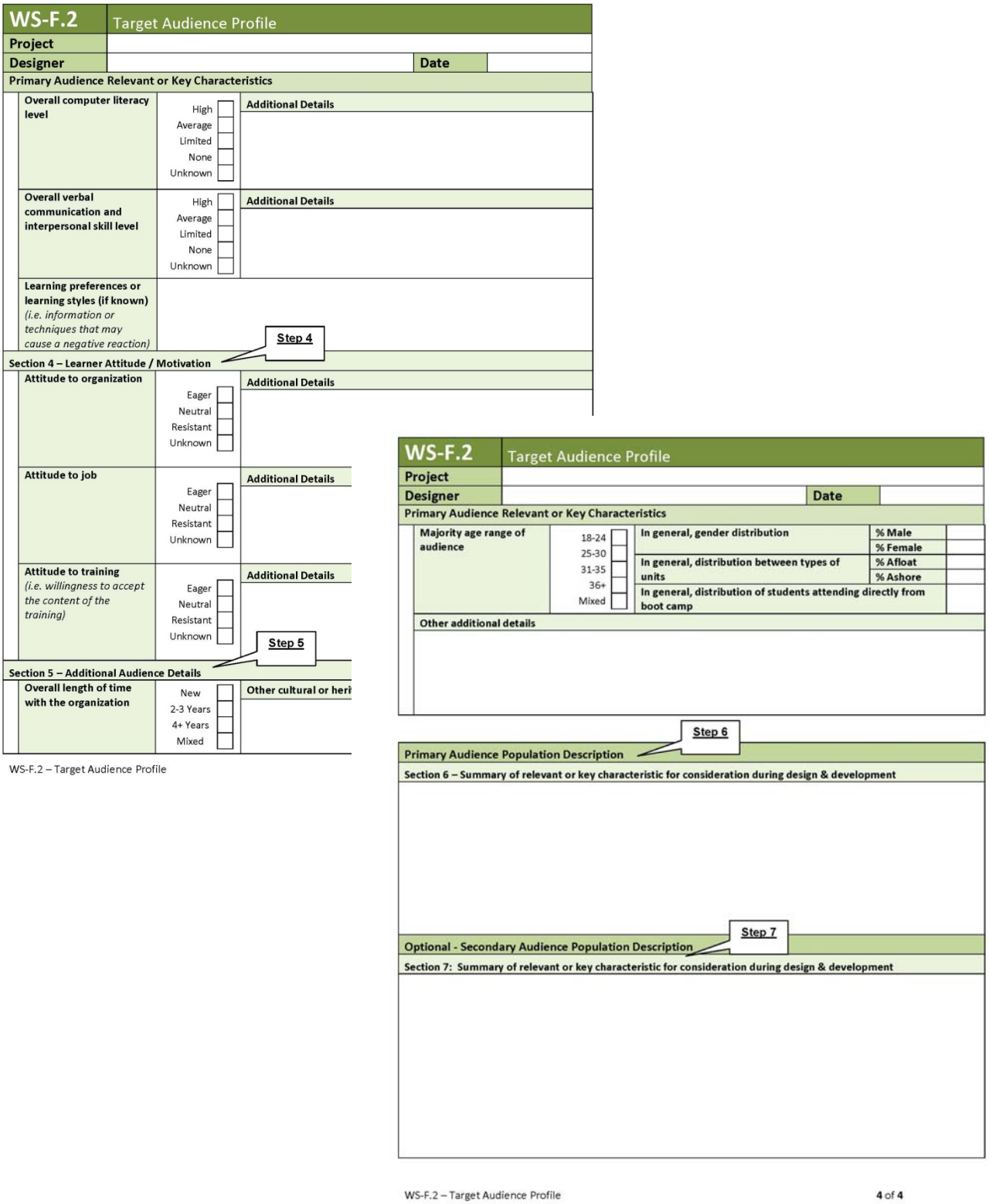
Section 3 - Learning and Language Preferences		
Vocabulary or terminology understanding - Technical	High / Average / Limited / None / Unknown	Additional Details
Vocabulary or terminology understanding – Non-Technical	High / Average / Limited / None / Unknown	Additional Details
Overall language skill level (mastery of spoken and written language)	High / Average / Limited / None / Unknown	Additional Details
Overall reading skill level	High / Average / Limited / None / Unknown	Additional Details
Overall math skill level	High / Average / Limited / None / Unknown	Additional Details

WS-F.2 – Target Audience Profile 2 of 4

JA-E.2:– How to Develop the Target Audience Profile, Continued

Format, Continued

The worksheet below aligns with the steps of the job aid on the following pages (*pages 3 and 4 of WS-F.2*).



WS-F.2 Target Audience Profile

Project

Designer **Date**

Primary Audience Relevant or Key Characteristics

Overall computer literacy level	High / Average / Limited / None / Unknown	**Additional Details**
Overall verbal communication and interpersonal skill level	High / Average / Limited / None / Unknown	**Additional Details**
Learning preferences or learning styles (if known) *(i.e. information or techniques that may cause a negative reaction)*		

Step 4

Section 4 – Learner Attitude / Motivation

Attitude to organization	Eager / Neutral / Resistant / Unknown	**Additional Details**
Attitude to job	Eager / Neutral / Resistant / Unknown	**Additional Details**
Attitude to training *(i.e. willingness to accept the content of the training)*	Eager / Neutral / Resistant / Unknown	**Additional Details**

Step 5

Section 5 – Additional Audience Details

Overall length of time with the organization	New / 2-3 Years / 4+ Years / Mixed	**Other cultural or heri**

WS-F.2 – Target Audience Profile

WS-F.2 Target Audience Profile

Project

Designer **Date**

Primary Audience Relevant or Key Characteristics

Majority age range of audience	18-24 / 25-30 / 31-35 / 36+ / Mixed	**In general, gender distribution**	**% Male** / **% Female**
		In general, distribution between types of units	**% Afloat** / **% Ashore**
		In general, distribution of students attending directly from boot camp	

Other additional details

Step 6

Primary Audience Population Description

Section 6 – Summary of relevant or key characteristic for consideration during design & development

Step 7

Optional - Secondary Audience Population Description

Section 7: Summary of relevant or key characteristic for consideration during design & development

WS-F.2 – Target Audience Profile **4** of **4**

JA-E.2:– How to Develop the Target Audience Profile, Continued

Procedures

Follow the steps in the order provided to collect the data about your learner. Record the results in the space provided in the Target Audience Profile worksheet (WS – F.2).

Step	Action
1	**Complete Section 1** - Focus interview questions to gather data on **specific abilities and aptitudes** for your project; **check** the box that best represents the potential students for your course; **record** any additional details in the space provided.
2	**Complete Section 2** - Focus interview questions to gather data on **specific tools and prerequisite skills** for your project; **check** the box that best represents the potential students for your course; **record** any additional details in the space provided.
3	**Complete Section 3** - Focus interview questions to gather data on **specific learning and language preferences** for your project; **check** the box that best represents the potential students for your course; **record** any additional details in the space provided.
4	**Complete Section 4** - Focus interview questions to gather data on the **specific learner's attitude/motivation** for your project; **check** the box that best represents the potential students for your course; **record** any additional details in the space provided.
5	**Complete Section 5** – Focus interview questions to gather data of the **specific additional details** about the learners for your project; **check** the box that best represents the potential students for your course; **record** any additional details in the space provided.

Continued on the next page

JA – E.2: How to Develop the Target Audience Profile, Continued

Procedures, Continued

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>6</td><td>Complete section 6 – review all of the data collected in Steps 1 – 5; in the space provided summarize your findings regarding the relevant or key characteristics that may need to be considered in order to adapt your training to meet the needs of the intended audience. See Appendix H – Analysis Tip Sheets, H5 for additional information regarding target population factors and design considerations.

Your summary should high-light the design considerations (i.e. amount of required practice, detail of content, transition strategies, needed equipment, etc) when answering the following types of questions* about the target population.
1. What is their proficiency?
2. What types of attitudes do they have?
3. What is the work environment they are accustomed to?
4. How are they used to doing things?
5. What shared or different points of view must be reflected and respected in the course?

* Source: Elengold, J. Linda, Teach SMEs to Deign Training, Instructional Systems Development, An INFOLINE Collection, Issue 0106, pg. 183., ASTD Press</td></tr>
<tr><td>7</td><td>Complete Section 7 only if a secondary population has been identified and the project plan indicates that their unique performance needs will also be addressed by the training.
<table>
<tr><th>If…</th><th>Then…</th></tr>
<tr><td>Secondary population</td><td>Identify any specific learner differences or unique key characteristics that you may need to consider during the design or development phases; in the space provided, summarize the specific differences or unique characteristics for this population.</td></tr>
<tr><td>No additional populations</td><td>Go to Step 8.</td></tr>
</table></td></tr>
<tr><td>8</td><td>Review the completed worksheet, adjust and finalize; confer with your manager/supervisor or an experienced instructional designer to ensure completeness and accuracy; adjust data content if needed.</td></tr>
</table>

JA – E.3: How to Determine Course Parameters and Constraints

Purpose

This job aid provides the instructions to help you identify any parameter or constraint that will have some type of limiting factor that defines the boundaries you must operate within for the for the design, development, delivery or testing of the resident training program (i.e. the course). As a reminder, the factors of constraints and parameters are defined as:

- **Constraint** – any limitation on the availability of time, money, methods, equipment, or human resources affecting a project
- **Parameter** - A given or a constraint which cannot changed

Who should use this JA

You should use this job aid if you are a course designer / course developer responsible for conducting the Analysis phase for a resident instruction program. Ideally you are a graduate of the Coast Guard Course Designer Course (CDC) or the SABA Knowledge Service Peak Performance System workshops (previously known as Accomplishment-Based Curriculum Development (ABCD) workshops).

When should you use this JA

This job aid can be used after the validation of the Task Analysis data and the completion of the target audience and instructor profiles. It should build off of any course parameters and constraints indentified during project alignment and documented in the project plan for this resident instruction project.

Associated Worksheets

An image of WS-F.3 can be found in *Appendix F* and a completed example of WS-F.3 is included in *Appendix G.*

Refer to the *SOP Downloads* page on TRACEN Petaluma's intranet web site for the most recent and usable copies of all worksheets and templates: http://cgweb.tcpet.uscg.mil/t_div/cdt/

JA – E.3: How to Determine Course Parameters and Constraints, Continued

Entering Assumptions

Use of this job aid assumes:

- You read Chapter 3, Section 3.4, Course Parameters and Constraints.
- Results from the work defined in the previous job aids found in the Analysis Phase: JA – E.1 and JA – E.2.
- Access to conduct interviews with a data source.
- Access to Schoolhouse management who will be responsible for the delivery of your instructional product
- You are familiar with the data collection method of interviewing and can develop any specific interview questions to obtain the data associated with your project that may not be pre-defined on WS – F.3 Parts A through D, as needed. See *Appendix H – Analysis Tip Sheets, Tip – H.1: Data Collection Methodologies* for more information regarding using the interviewing method.

How to use this JA

Follow the steps as they are presented in the job aid. Use the corresponding worksheet (worksheet numbered WS – F.3.A through WS – F.3.D) for recording the results from this analysis task.

To aid in the future use of the resulting data, Course parameters and constraints are grouped into the following categories:

- Part A – General parameters and constraints
- Part B – Delivery parameters and constraints
- Part C – Design/development parameters and constraints
- Part D – Testing/evaluating parameters and constraints

JA – E.3: How to Determine Course Parameters and Constraints, Continued

Procedures

Follow the steps in the order provided. The job aid is designed to be used with the associated worksheets Part A through Part D.

Capturing course parameters and constraints, is considered a "working" document meaning that any of these conditions could change as the project evolves throughout the ADDIE process. Be sure to document any changes to maintain an accurate audit trail.

Step	Action
1	**Gather** all input documents and other project resources such as contact information for individuals you may need to interview. (see "Directions" section for a list of input sources)
2	**Review** all completed analysis worksheets, project management plan and any additional notes on the ISD project; **look** for any given restrictions or limitations that can or will influence the design, development, delivery or testing/evaluating of the resident training program.
3	Using WS-F.3 Course Parameters and Constraints worksheet, **document** the results of your review into the appropriate category (general, delivery, design/development or testing/evaluating); be use to include any details or additional questions you may have for the particular parameter or constraint. You will need to validate this concern later in this process.
4	**Identify** data that may be missing or needs additional detail; i.e. validation for accuracy and completeness.
5	Based on the results from step 3, **determine** who needs to be interviews to provide the missing or incomplete data.
6	**Arrange** for **and conduct** the data collections **interview session(s)** to collect missing or incomplete data and to confirm/validate all identified parameters and constraints to date. ***Note:*** *You may need different reviewers for each category or there may be someone who can confirm the accuracy of all of the data. If you are not certain who these individual are, your project manager, manager and/or client/sponsor should be able to help.*
7	Evaluative the implications or impact to your project.
8	Review implications or impact with ISD project manager, gain concurrence in impact before moving to the Design phase.
9	For audit trail purposes, be sure to document any results from step 8 (for all categories) including any specific strategies for dealing with any identified course parameters and constraints.

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APPENDIX F

Worksheets for Analysis Phase

Table of Content

An accurate and complete analysis is the basis for almost all of the future design and development decisions. Using a standard and systematic way of capturing the results of the analysis process will ensure that actuate data is passed to the next phase and that an audit trail exists for the decisions made during the analysis phase of the resident instruction project. These worksheets are designed to be used in concert with the Analysis Phase Job Aids presented in *Appendix E*.

Note: *There is not a one-to-one relationship since not all job aids need a standard way of capturing the associated data.*

Worksheet Number	Worksheet Title
WS – F.1	Task Analysis – Task Detailing Worksheet
WS – F.2	Target Audience Profile Worksheet
WS – F.3.A	Course Parameters and Constraints – General Worksheet
WS – F.3.B	Course Parameters and Constraints – Delivery Worksheet
WS – F.3.C	Course Parameters and Constraints – Design and Development Worksheet
WS – F.3.D	Course Parameters and Constraints – Testing and Evaluating Worksheet

Worksheet Access

Samples of the worksheets are included in this appendix. Refer to the *SOP Downloads (Word Version)* page on TRACEN Petaluma's internet website for the most recent and usable copies of all Worksheets and Templates:
http://www.uscg.mil/hq/cg1/TracenPetaluma/SOP/default.asp

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WS – F.1: Task Analysis – Task Detailing Worksheet

Page 1

WS-F.1	Task Analysis – Task Detailing		
Project			
Designer		Date	
Task		Task Code	
Source Analysis			

References	Equipment Required

General Performance Support Decision for Course	☐ Job Aid ☐ Job Aid with Extensive Training ☐ Job Aid with Introductory Training ☐ Train to Memory,

	Steps (Enabling Objectives)	Prerequisite Knowledge

WS-F.1 – Task Analysis – Task Detailing **1** of **2**

WS – F.1: Task Analysis – Task Detailing Worksheet, Continued

Page 2

Steps (Enabling Objectives) Cont.		Prerequisite Knowledge

WS-F.1 – Task Analysis – Task Detailing 2 of 2

WS – F.2: Target Audience Profile Worksheet

Page 1

WS-F.2	Target Audience Profile		
Project			
Designer		Date	
Data Sources(s)			
Job		Job Specialty	

Primary Audience Relevant or Key Characteristics

Section 1 - Aptitudes / Abilities

Current knowledge of tasks/work or subject matter area	High ☐ Average ☐ Limited ☐ None ☐ Unknown ☐	**Additional Details**
Relevant background and experience	High ☐ Average ☐ Limited ☐ None ☐ Unknown ☐	**Additional Details**

Section 2 - Tools and Prerequisite Skills

Specific tool(s) or prerequisite skills abilities

Specific tool(s) or prerequisite skills deficiencies

WS – F.2: Target Audience Profile Worksheet, Continued

Page 2

WS-F.2	Target Audience Profile		
Project			
Designer		Date	

Other deficiencies that may require special attention

Primary Audience Relevant or Key Characteristics

Section 3 - Learning and Language Preferences

Vocabulary or terminology understanding - Technical	High ☐ Average ☐ Limited ☐ None ☐ Unknown ☐	**Additional Details**
Vocabulary or terminology understanding – Non-Technical	High ☐ Average ☐ Limited ☐ None ☐ Unknown ☐	**Additional Details**
Overall language skill level (mastery of spoken and written language)	High ☐ Average ☐ Limited ☐ None ☐ Unknown ☐	**Additional Details**
Overall reading skill level	High ☐ Average ☐ Limited ☐ None ☐ Unknown ☐	**Additional Details**
Overall math skill level	High ☐ Average ☐ Limited ☐ None ☐ Unknown ☐	**Additional Details**

WS – F.2: Target Audience Profile Worksheet, Continued

Page 3

WS-F.2	Target Audience Profile		
Project			
Designer		**Date**	

Overall computer literacy level	High ☐ Average ☐ Limited ☐ None ☐ Unknown ☐	**Additional Details**
Overall verbal communication and interpersonal skill level	High ☐ Average ☐ Limited ☐ None ☐ Unknown ☐	**Additional Details**
Learning preferences or learning styles (if known) *(i.e. information or techniques that may cause a negative reaction)*		

Primary Audience Relevant or Key Characteristics

Section 4 – Learner Attitude / Motivation

Attitude to organization	Eager ☐ Neutral ☐ Resistant ☐ Unknown ☐	**Additional Details**
Attitude to job	Eager ☐ Neutral ☐ Resistant ☐ Unknown ☐	**Additional Details**
Attitude to training *(i.e. willingness to accept the content of the training)*	Eager ☐ Neutral ☐ Resistant ☐ Unknown ☐	**Additional Details**

Section 5 – Additional Audience Details

Overall length of time with the organization	New ☐ 2-3 Years ☐ 4+ Years ☐ Mixed ☐	**Other cultural or heritage issues that may require special attention**

WS-F.2 – Target Audience Profile **3** of **4**

WS – F.2: Target Audience Profile Worksheet, Continued

Page 4

WS-F.2	Target Audience Profile				
Project					
Designer			Date		
Majority age range of audience	18-24 ☐ 25-30 ☐ 31-35 ☐ 36+ ☐ Mixed ☐	In general, gender distribution	% Male		
			% Female		
		In general, distribution between types of units	% Afloat		
			% Ashore		
		In general, distribution of students attending directly from boot camp			
Other additional details					
Primary Audience Population Description					
Section 6 – Summary of relevant or key characteristic for consideration during design & development					
Optional - Secondary Audience Population Description					
Section 7: Summary of relevant or key characteristic for consideration during design & development					

WS-F.2 – Target Audience Profile 4 of 4

WS – F.3.A: Course Parameter and Constraints - General Worksheet

General, Page 1

WS-F.3.A	Course Parameter and Constraints: Part A - General			
Project				
Designer		Date		
Data Sources(s)				
Is training mandated? If yes, by whom?	No ☐ Yes ☐ Unknown ☐	Comments		
Are job / job specialty procedures changing rapidly?	No ☐ Yes ☐ Unknown ☐	Comments		
Are methods and/or procedural documents available for use in classroom? If not, what is the scheduled release date?	No ☐ Yes ☐ Unknown ☐	Comments		
Initial number of students?	Comments	Anticipated number of students per year?	Comments	
Are Accomplished Performers (APs) available?	No ☐ Yes ☐ Unknown ☐	Comments		
Are Subject Matter Experts (SMEs) or Subject Matter Specialists (SMSs) available?	No ☐ Yes ☐ Unknown ☐	Comments		
Are media developers available?	No ☐ Yes ☐ Unknown ☐	Comments		

WS-F.3.A – Course Parameters and Constraints: Part A - General **1** of **2**

WS – F.3.A: Course Parameter and Constraints – General Worksheet, Continued

General, Page 2

WS-F.3.A	Course Parameter and Constraints: Part A - General		
Project			
Designer		Date	
Are editors available?	No ☐ Yes ☐ Not Req ☐	Comments	
Is due date fixed (pre-defined or mandated) and cannot be negotiated to meet the normal Instructional Systems design, development, testing and/or evaluating process?	No ☐ Yes ☐ Unknown ☐	Comments	
Must live within the budget?	No ☐ Yes ☐ Unknown ☐	Comments	
Must live within the specified content of the training?	No ☐ Yes ☐ Unknown ☐	Comments	
Any other additional General Constraints or Parameters; included details in the "Comments" section	No ☐ Yes ☐ Unknown ☐	Comments	
Summarize key constraints and/or parameters and include any coping strategies or contingency plans.			

WS-F.3.A – Course Parameters and Constraints: Part A - General 2 of 2

WS – F.3.B: Course Parameter and Constraints – Delivery Worksheet

Delivery, Page 1

WS-F.3.B	Course Parameter and Constraints: Part B - Delivery		
Project			
Designer		Date	

Has the duration of the training been pre-specified/defined? If yes, will the course timeline be sufficient?	No ☐ Yes ☐ Unknown ☐	Comments
Are instructional methods pre-specified/defined? (i.e. blended delivery method could not be utilized?)	No ☐ Yes ☐ Unknown ☐	Comments
Are delivery funds available to support other delivery methods?	No ☐ Yes ☐ Not Req ☐	Comments
Is the Instructor/student ratio (I:S) pre-specified/defined?	No ☐ Yes ☐ Unknown ☐	Comments
Will there be trained instructors available to teach?	No ☐ Yes ☐ Unknown ☐	Comments
Is there sufficient and suitable classroom space?	No ☐ Yes ☐ Unknown ☐	Comments
Are Lab facilities relevant to job/specialty available for training	No ☐ Yes ☐ Not Req ☐	Comments
Are any other facilities, such as a wet room, equipment storage room available for training?	No ☐ Yes ☐ Not Req ☐	Comments

WS-F.3.B – Course Parameters and Constraints: Part B - Delivery 1 of 2

WS – F.3.B: Course Parameter and Constraints – Delivery Worksheet, Continued

Delivery, Page 2

WS-F.3.B	Course Parameter and Constraints: Part B - Delivery		
Project			
Designer		Date	

Is the existing training hardware adequate?	No ☐ Yes ☐ Not Req ☐	Comments
If new hardware is still being developed? If no, is it available for purchase and is there adequate budget to buy it?	No ☐ Yes ☐ Not Req ☐	Comments
Is there an existing simulator associated with the course? If yes, will there be times when it is unavailable to the students?	No ☐ Yes ☐ Not Req ☐	Comments
Are there any safety factors, which may prevent some types of training delivery activities?	No ☐ Yes ☐ Unknown ☐	Comments
Are there reasons why the student cannot observe activities in the actual job performance situation, if needed?	No ☐ Yes ☐ Unknown ☐	Comments
Are there any other delivery concerns? Please specify in the "Comments: section.	No ☐ Yes ☐ Unknown ☐	Comments

Summarize key constraints and/or parameters and include any coping strategies or contingency plans.

WS – F.3.C: Course Parameter and Constraints – Design and Development Worksheet

Design and Development, Page 1

WS-F.3.C	Course Parameter and Constraints: Part C – Design/Develop		
Project			
Designer		**Date**	

Must accommodate wide-range of entry skills/knowledge?	No ☐ Yes ☐	**Comments**
Must-live-within the pre-specified teaching methods (activity and/or media)?	No ☐ Yes ☐	**Comments**
High levels of simulation are not practical.	No ☐ Yes ☐	**Comments**
Budget possibly too low to accommodate some required design?	No ☐ Yes ☐	**Comments**
Student-Instructor ratio probably too great.	No ☐ Yes ☐	**Comments**
Student unavailability must be accommodated.	No ☐ Yes ☐	**Comments**
Remediation activities possibly prevented.	No ☐ Yes ☐	**Comments**
Length of training pre-specified?	No ☐ Yes ☐	**Comments**

WS-F.3.C – Course Parameters and Constraints: Part C – Design/Develop **1** of **2**

WS – F.3.C: Course Parameter and Constraints – Design and Development Worksheet, Continued

Design and Development, Page 2

WS-F.3.C	Course Parameter and Constraints: Part C – Design/Develop		
Project			
Designer		**Date**	

Media development capabilities not present and unable to purchase?	No ☐ Yes ☐	**Comments**
Instructor unavailability will prevent some design?	No ☐ Yes ☐	**Comments**
Recurring training is a must.	No ☐ Yes ☐	**Comments**
Are there any other design or development concerns? Please specify in the "Comments: section	No ☐ Yes ☐ Not Req ☐	**Comments**

Summarize key constraints and/or parameters and include any coping strategies or contingency plans.

WS-F.3.C – Course Parameters and Constraints: Part C – Design/Develop **2** of **2**

WS – F.3.D: Course Parameter and Constraints – Testing and Evaluating Worksheet

Testing and Evaluation, Page 1

WS-F.3.D	Course Parameter and Constraints: Part D – Testing and Evaluating		
Project			
Designer		**Date**	

Will students be available to try-out and test the training material and/or job aids?	No ☐ Yes ☐	**Comments**
Evaluation method pre-specified?	No ☐ Yes ☐	**Comments**
Possible disagreement on what "success" is?	No ☐ Yes ☐	**Comments**
Formal qualification or certification required?	No ☐ Yes ☐	**Comments**
Re-qualification or re-certification required?	No ☐ Yes ☐	**Comments**
Safety factors preclude some evaluation methods?	No ☐ Yes ☐	**Comments**
Simulator not always available for testing?	No ☐ Yes ☐ N/A ☐	**Comments**
Other concerns? Please specify in the "Comments: section	No ☐ Yes ☐ N/A ☐	**Comments**

WS-F.3.D – Course Parameters and Constraints: Part D – Testing and Evaluating **1** of **2**

WS – F.3.D: Course Parameter and Constraints – Testing and Evaluating Worksheet, Continued

Testing and Evaluation, Page 2

WS-F.3.D	Course Parameter and Constraints: Part D – Testing and Evaluating		
Project			
Designer		Date	
Summarize key constraints and/or parameters and include any coping strategies or contingency plans.			

APPENDIX G

Additional Examples for Analysis

Table of Contents

This appendix presents some additional examples of the worksheet presented throughout Chapter 3, Analysis Phase. Primary examples are located within the text for that topic being discussed. All examples are based on the job aids presented in *Appendix E* and the suggested worksheets presented in *Appendix F*.

The examples are presented in their entirety and serve only as a reference for you. The actual materials you develop may vary slightly from those presented in this appendix, depending on the course development requirements.

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EX – G.1: Course Parameters and Constraints Part A – General

WS-F.3.A	Course Parameter and Constraints: Part A - General		
Project	SK "A" School		
Designer	M. Smith / G. Mitchell	**Date**	12 Mar 2011
Data Sources(s)	School Chief, SKC Smith		

1. **Is training mandated? If yes, by whom?**	No ■ Yes ☐ Unknown ☐	**Comments**
2. **Are job / job specialty procedures changing rapidly?**	No ■ Yes ☐ Unknown ☐	**Comments**
3. **Are methods and/or procedural documents available for use in classroom? If not, what is the scheduled release date?**	No ☐ Yes ■ Unknown ☐	**Comments**

4. **Initial number of students?**	**Comments**: 130	5. **Anticipated number of students per year?**	**Comments**: 78

6. **Are Accomplished Performers (APs) available?**	No ☐ Yes ■ Unknown ☐	**Comments**
7. **Are Subject Matter Experts (SMEs) or Subject Matter Specialists (SMSs) available?**	No ☐ Yes ■ Unknown ☐	**Comments**
8. **Are media developers available?**	No ☐ Yes ■ Unknown ☐	**Comments**: But will need to submit appropriate request including timeframe and quantity of work; see IST supervisor for latest request form; as of 01 March 2011 their process is being reviewed.

WS-F.3.A – Course Parameters and Constraints: Part A - General **1** of **2**

EX – G.1: Course Parameters and Constraints Part A – General, Continued

WS-F.3.A	Course Parameter and Constraints: Part A - General		
Project	SK "A" School		
Designer	M. Smith / G. Mitchell	**Date**	12 Mar 2011

9. Are editors available?	No ☐ Yes ■ Not Req ☐	**Comments** Will need to submit appropriate request including timeframe and quantity of work; to be considered in prioritization of Technical Writer workload.
10. Is due date fixed (pre-defined or mandated) and cannot be negotiated to meet the normal Instructional Systems design, development, testing and/or evaluating process?	No ☐ Yes ■ Unknown ☐	**Comments** Goal is to have new courseware ready for FY12, Second Quarter delivery date of March 2013.
11. Must live within the budget?	No ☐ Yes ■ Unknown ☐	**Comments**
12. Must live within the specified content of the training?	No ☐ Yes ■ Unknown ☐	**Comments**
13. Any other additional General Constraints or Parameters; included details in the "Comments" section	No ☐ Yes ☐ Unknown ☐	**Comments**

Summarize key constraints and/or parameters and include any coping strategies or contingency plans.

Key constraint is fixed due date, see item #10 above. Will need to ensure that ISD project schedule and POAM is accurate

EX – G.2: Course Parameters and Constraints Part B – Delivery

WS-F.3.B	Course Parameter and Constraints: Part B - Delivery		
Project	SK "A" School		
Designer	M. Smith / G. Mitchell	**Date**	12 Mar 2011

1. Has the duration of the training been pre-specified/defined? If yes, will the course timeline be sufficient?	No ☐ Yes ■ Unknown ☐	**Comments** Based on current design for the complete re-write, the existing 8 weeks is sufficient; however this should be identified in Part C of this worksheet a s a possible constraint if additional time is required; the process for requesting additional time is documented in SOP Vol. 6 – Curriculum Outline
2. Are instructional methods pre-specified / defined? (i.e. blended delivery method could not be utilized?)	No ☐ Yes ■ Unknown ☐	**Comments** No time has been included in the POAM for any other instructional methods; only leader led is going to be considered at this time.
3. Are delivery funds available to support other delivery methods?	No ☐ Yes ☐ Not Req ■	**Comments**
4. Is the Instructor / student ratio (I:S) pre-specified/defined?	No ■ Yes ☐ Unknown ☐	**Comments**
5. Will there be trained instructors available to teach?	No ☐ Yes ■ Unknown ☐	**Comments**
6. Is there sufficient and suitable classroom space?	No ☐ Yes ■ Unknown ☐	**Comments**
7. Are Lab facilities relevant to job/specialty available for training	No ☐ Yes ■ Not Req ☐	**Comments**
8. Are any other facilities, such as a wet room, equipment storage room available for training?	No ☐ Yes ☐ Not Req ■	**Comments**

EX – G.2: Course Parameters and Constraints Part B – Delivery, Continued

WS-F.3.B	Course Parameter and Constraints: Part B - Delivery		
Project	SK "A" School		
Designer	M. Smith / G. Mitchell	**Date**	12 Mar 2011

9. Is the existing training hardware adequate?	No ☐ Yes ■ Not Req ☐	**Comments**
10. If new hardware is still being developed? If no, is it available for purchase and is there adequate budget to buy it?	No ■ Yes ☐ Not Req ☐	**Comments**
11. Is there an existing simulator associated with the course? If **yes**, will there be times when it is unavailable to the students?	No ■ Yes ☐ Not Req ☐	**Comments**
12. Are there any safety factors, which may prevent some types of training delivery activities?	No ■ Yes ☐ Unknown ☐	**Comments**
13. Are there reasons why the student cannot observe activities in the actual job performance situation, if needed?	No ☐ Yes ☐ Unknown ■	**Comments**
14. Are there any other delivery concerns? Please specify in the "Comments: section.	No ■ Yes ☐ Unknown ☐	**Comments**

Summarize key constraints and/or parameters and include any coping strategies or contingency plans.

N/A

WS-F.3.B – Course Parameters and Constraints: Part B - Delivery **2** of **2**

EX – G.3: Course Parameters and Constraints Part C – Design and Development

WS-F.3.C	Course Parameter and Constraints: Part C – Design/Develop		
Project	SK "A" School		
Designer	M. Smith / G. Mitchell	**Date**	12 Mar 2011

1. Must accommodate wide-range of entry skills/knowledge?	No ■ Yes □	**Comments**
2. Must-live-within the pre-specified teaching methods (activity and/or media)?	No ■ Yes □	**Comments**
3. High levels of simulation are not practical.	No ■ Yes □	**Comments** This is not an issue; a mock warehouse exists as does a real inventory supply with the ET School; all needed software databases have existing training data bases, so real-world simulation is possible. There is no simulator required.
4. Budget possibly too low to accommodate some required design?	No ■ Yes □	**Comments** Although there are some budget issues, it is not believed to be a factor for the current plans for design and development of the courseware; there is limited funds for travel to collect data, but again this work is also performed at the training center and both APs and SMEs are available locally.
5. Student-Instructor ratio probably too great.	No ■ Yes □	**Comments** Not expected to change from existing Curriculum Outline ratio but there may be some individual lessons changes in current ratio allocations; but it is not expected to exceed total available instructor billets.
6. Student unavailability must be accommodated.	No ■ Yes □	**Comments** Other than normal time already allocated for indoc and out-doc; at no time are the students unavailable to attend class.
7. Remediation activities possibly prevented.	No ■ Yes □	**Comments**
8. Length of training pre-specified?	No ■ Yes □	**Comments** However if the new design anticipates the course will exceed the existing 8 weeks, this could become an issue. Approval of course length change is documents in SOP, Vol. 6 (Curriculum Outline)…will need to be sure to check if this needs to be addressed.

WS-F.3.C – Course Parameters and Constraints: Part C – Design/Develop **1** of **2**

EX – G.3: Course Parameters and Constraints Part C – Design and Development, Continued

WS-F.3.C	Course Parameter and Constraints: Part C – Design/Develop		
Project	SK "A" School		
Designer	M. Smith / G. Mitchell	**Date**	12 Mar 2011

9. Media development capabilities not present and unable to purchase?	No ■ Yes ☐	**Comments**
10. Instructor unavailability will prevent some design?	No ■ Yes ☐	**Comments**
11. Recurring training is a must.	No ■ Yes ☐	**Comments**
12. Are there any other design or development concerns? Please specify in the "Comments: section	No ☐ Yes ☐ Unkown ■	**Comments**

Summarize key constraints and/or parameters and include any coping strategies or contingency plans.

Changes to extend the course may become an issue; must stay on top of this possibility as design and development progresses; see item #8.

Budget is tight but not an issue as long as access to APs and SMEs on base is provided as scheduled in POAM; if not designers may need to travel or bring APs here for focus group, see item #4.

EX – G.4: Course Parameters and Constraints Part D – Testing and Evaluating

WS-F.3.D	Course Parameter and Constraints: Part D – Testing and Evaluating		
Project	SK "A" School		
Designer	M. Smith / G. Mitchell	**Date**	12 Mar 2011

1. **Will students be available to try-out and test the training material and/or job aids?**	No ☐ Yes ■	**Comments**
2. **Evaluation method pre-specified?**	No ☐ Yes ■	**Comments** All test for the TPOs will be performance-based
3. **Possible disagreement on what "success" is?**	No ■ Yes ☐	**Comments**
4. **Formal qualification or certification required?**	No ■ Yes ☐	**Comments**
5. **Re-qualification or re-certification required?**	No ■ Yes ☐	**Comments**
6. **Safety factors preclude some evaluation methods?**	No ■ Yes ☐	**Comments**
7. **Simulator not always available for testing?**	No ☐ Yes ☐ N/A ■	**Comments**
8. **Other concerns? Please specify in the "Comments: section**	No ☐ Yes ☐ N/A ■	**Comments**

WS-F.3.D – Course Parameters and Constraints: Part D – Testing and Evaluating **1** of **2**

EX – G.4: Course Parameters and Constraints Part D – Testing and Evaluating, Continued

WS-F.3.D	Course Parameter and Constraints: Part D – Testing and Evaluating		
Project	SK "A" School		
Designer	M. Smith / G. Mitchell	**Date**	12 Mar 2011
Summarize key constraints and/or parameters and include any coping strategies or contingency plans.			

APPENDIX H

Tip Sheets for Analysis Phase

Table of Contents

Use the following listing to access the specific topic you are interested in learning more about.

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TIP – H.1: Data Collection Methodologies

Introduction

There are various techniques to collect data. The methods you choose will depend on the parameters and constraints identified for your project, such as the allotted time to conduct the analysis or the availability of accomplished performers. Once you have decided what data to collect and the best source for the information, you will need to decide which method(s) to use.

Each method has it pros/cons and some may work better than others depending on the particular type of data you are trying to collect. The following information describes each method and provides some basic guidelines to help you decide which method(s) to use. Be sure to document your decisions for your project. See *WS – F1.1 Task Analysis Part 1: Data Collection Plan*.

Tip Sheet Sources

The primary sources for the following information are:

- ASTD 1998 Annual Info-line Collection– The How-To Reference Tool for Training and Development Professionals, Issue 9808, Task Analysis, pages 141 through 143, published by ASTD Alexandria, VA, http://www.astd.org
- Optimizing Human Performance, New Performance Planning Front End Analysis, Job Aid 6, pages 2 through 32, and Appendix 3: Guidelines for Interviewing and Observing , pages 50 through 54, published by SABA as part of their Accomplishment-Based Curriculum Development (ABCD) Human Performance Technologies Series, 1997 edition
- FKA Designing Instruction Workshop – Support Manual ©, Analysis, Guidelines for Gathering Analysis Data, pages 54 through 58, Friesen, Kaye, and Associates, http://www.FKA.com

TIP – H.1: Data Collection Methodologies, Continued

Individual Interviews

This form of data collection utilizes direct questioning of accomplished performers (APs), subject matter experts (SMEs), supervisors, or others who have significant involvement with task performance. For conducting task analysis, interviewing true APs is the preferred method when resources (time, people, and money) allow for it. The following are some useful points to remember:

- These interviews can be highly structured using standard questions for each interview or open ended, asking respondents to narrate how they perceive a task is performed; use the structure that will ensure the most actuate data at the correct level of detail for your project.
- You make choose to ask questions about how workers currently accomplish the work, as well as gather information about improving the performance of the tasks.
- Carefully plan for the interview(s); determine the levels of data you want to collect and design specific questions based on each level of detail.
- Carefully plan the interview and the steps to be taken during the process; be prepared – ensure there is enough structure to get the desired data efficiently; do not it be too ad hoc.
- Ask for access to someone who is currently performing the work correctly (to standard) and can give you the details of what is done; this would be a ***real*** AP; the individual the supervisor would choose to use as a model for exemplary performance), DO NOT accept just somebody who is available at the time.
- Some on who is considered an SME can provide how they think the work should be done; use SMEs to provide additional “big picture” details, clarification of documentation or policies, as well as the technical reviewer of content. They may also be able to provide historical information and the rationales which can be used to prioritize how the tasks are sequenced in the training material.
- During the interview, avoid using training jargon; speak in plain terms and us his/her language whenever possible.
- You can use interviews to clarify ambiguous or confusing information obtained from other data collections methods such as extant data reviews or observations.

TIP – H.1: Data Collection Methodologies, Continued

Observations

With this form of data collection you will observe individuals performing tasks in their work setting for the job and/or job specialties addressed by your project. Consequently, it will be important for you to keep the following in mind:

- Plan for the site visit to ensure you will be there when the work is being performed; ensure you have a written agenda or outline for what you want to observe (and why), as well as the general questions you want answered.
- Dress appropriately for the environment; particularly any safety requirements such as rubber-soled/non-slip shoes.
- Get permission in advance for any photograph or video-tape you want to take of the work environment.
- Minimize disruptions to the work; follow all safety rules.
- Make sure you explain to workers, their supervisors, and any other key individuals the purpose of your observation(s).
- Take notes on each work task including any key elements of the work such as:
  - What signals and inputs the workers receive
  - The terminology they use
  - Work groups or others that they interact with
  - Evidence that specialties exist within the job or job title

  If possible, talk with the performers about:
  - What a typical work day is like
  - Elements of the job that are most important and what elements are most difficult
  - Things they wish they had learned prior to assuming the position (job specialty)
  - Events that are part of the job but not performed on a routine or predictable basis (i.e. off-normal) and about emergency events
- When an AP is demonstrating or talking through an activity, do not stop him/her to ask a question until the sequence is complete; for example, do not stop the AP to ask to define a term – wait until there is an obvious stopping point.
- Use observation data to validate findings obtained through other data-gathering methods.

TIP – H.1: Data Collection Methodologies, Continued

Focus Group Interviews

This form of data collection is similar to individual interviews because it also utilizes direct questioning techniques; however, the questioning is conducted with groups of APs in the same job or job specialty to come to consensus data about how employees perform the tasks. You may want to consider using this technique when project constraints include limited travel funds or compressed timelines.

In addition to using the guidelines stated in the block of text for "Individual Interviews," the following guidelines should be kept in mind when using this data collection method:

- Encourage members to analyze and discuss various aspects of the job, especially those areas that are problematic or difficult to perform.
- Use this process to determine how cooperative and interdependent roles/job specialties contribute to accomplishing major outputs.
- Keep group members specific to the job or job title and for APs who are currently doing the work; avoid having SMEs participate on same focus group with APs; DO NOT mix officers and enlisted personnel in the same focus group.
- Prepare for and practice any presentations that will be part of the focus group process; for example you may choose to use a PowerPoint presentation to introduce the task analysis data collection procedure that will be used during the focus group or explain how data consensus will be achieved.
- Decide on a process for dealing with unresolved points before you start collecting any data; share with group.

On rare occasions when completing task analysis for resident instruction, there may not be any real APs because the performance is too new to the organization. If this situation occurs, seek guidance from your supervisor. You may need to evolve the accomplished task performance from one or a combination of these sources:

- Designers of the new equipment, system or new policy
- SMEs or other key individuals who can speculate the new performance
- Performers in another organization who have some experience similar to the new performance

TIP – H.1: Data Collection Methodologies, Continued

Extant Data

This term is usually used for printed material, and can include documents such as previous job task analysis, technical manuals, job aids, job descriptions, doctrine/policy. The review of this type of data is generally where you will start the data collection phase. When using this form of data collection, follow these guidelines:

- Prepare an inventory or list of all of the various documents and other forms of extant data; be sure to include the version or published date of the document.
- Before completing a detailed review of the document, decide what you expect to find out, that is, what is the goal for spending the time to review the document; prioritize your document review based on which documents can provide the most accurate information in the largest quantity; this process will result in the most efficient use of your time and produce desired results quickly; don't waste time reviewing material of little value; SME's can help identify high impact extant data.
- Be aware that job descriptions may be written to justify a particular bias and may NOT accurately reflect how the job is actually performed; also confirm initial findings through another data collection method, such as individual interviews or observations.
- Based on your project's data needs, look for sources of information outside of your organization, such as benchmarking studies, professional organizations, or academic publications.
- When reviewing extant data, be on the lookout for concepts; when reviewing content, focus first on identifying and structuring the required information, then focus on getting the information that makes it performance oriented (this way needs to be done through individual interviews/observations).
- Use printed information to supplement other data collection methods; always use other data collection methods to validate/confirm initial findings during extant data review.

TIP – H.1: Data Collection Methodologies, Continued

Surveys and Questionnaires

When using these types of prepared question and answer formats that focus on detailed information about various work activities, you will want to ensure the following:

- Design the survey/questionnaire with the help of an SME to ensure that the questions are focused and accurate.
- Test the survey/questionnaire with a sample group of workers to verify that its directions are clear and easy to understand and that it's navigation works as designed, such as the survey branching to other questions based on the "yes" or "no" response of the survey taker.
- Use a survey/questionnaire when you need to gather data from a large number of geographically dispersed workers or to add validity to data gathered from other methods.
- When designing the survey/questionnaire exclude information that can be obtained from other sources, that is information already known about the problem or opportunity, or that the respondent cannot supply.
- Identify the survey participants: who will get the survey (and why)? Will it be sent to a representative sample of the target population or to APs? Will SMEs or supervisors be included?
- Identify the type of demographic information needed to filter or sort the survey results, for example if you will need to sort the survey results between afloat and shore units, your survey will need to ask the respondents to indicate the type of unit they are assigned to.
- This method requires some expertise in developing survey questions, ensuring the relationship of the data in survey design and creating the correct flow through the various survey navigation techniques using the CG's approved web-hosted (on-line) survey tools.

TIP – H.1: Data Collection Methodologies, Continued

Other Methods

These methods for collecting data are not used as frequently as those described earlier in this session. However, they may be useful in some particular situations and have been included for your consideration.

Checklist: Providing a checklist to the worker for choosing the tasks associated with performing a job can sometimes be a useful tool, but they involve some precautions. The use of checklists requires:

- Recognition rather that recall; this is simpler for the respondents and less time consuming than individual interview and/or observations; however, the information gathered may be limited, particularly in relation to task sequencing, relationships between tasks and worker-machine interface.
- Extensive preliminary work to identify the tasks for including; this preliminary work could involve interviews, observations, questionnaires, or some other means which could increase the overall time allocated for data collection if not managed appropriately.

Diaries: This method requires workers/participates to organize activity schedules and to follow schedules by keeping logs and records for their daily activities. When using this method, remember the following:

- This method is time consuming and disruptive for the worker, which could result in inaccurate or missing data.
- Can be used to determine the frequency of the task performance.

Additional Resources

For more information on conducting focus groups or facilitating groups see:

- ASTD 1999 Annual Info-line Collection– The How-To Reference Tool for Training and Development Professionals, Issue 9907, How to Conduct Focus Groups, pages 114 through 129, published by ASTD Alexandria, VA, http://www.astd.org
- Facilitating with Ease – A Step-by-Step Guide with Customizable Worksheets on CD-RM, written by Ingrid Bens, published 2000 by Jossey-Bass, in San Francisco CA

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TIP – H.2: Flowcharting Guidelines

Introduction

Flowcharting can be extremely helpful to you during the analysis phase. You have already learned that there are various ways to collect data (see *Tip – H.1 Data Collection Methodologies*). Flowcharting provides a way to graphically represent the job, the job specialty, or the associated tasks all the way down to the step level of data.

A flowchart provides a picture of the relationship of the signals, behaviors, and resulting outputs (accomplishments) for various levels of data details. For example, at the beginning of your project you may only be interested in the general flow of major outputs of a job or job specialty. However, as you need to make more detailed decisions about the actual performance needed to produce the major outputs, a flowchart can be used to gather more and more detail.

Tip Sheet Source

The primary source for the following information is:

> Optimizing Human Performance, New Performance Planning Front End Analysis, Job Aid 6, Appendix 1: Flow Charting, pages 39 through 43, published by SABA as part of their Accomplishment-Based Curriculum Development (ABCD) Human Performance Technologies Series, 1997 edition

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One Basic Rule

When using this process for the Analysis phase, particularly with Task Analysis, use this rule of thumb:

Only flowchart to the level of detail required to reveal the elements needed by the stage of analysis at which you are currently working.

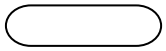
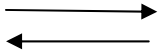
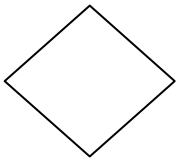
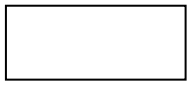
For example:

If you are producing ….	Then flowchart to a level which will reveal the elements of…
A general job level overview	Major signals for starting job outputs, general behaviors, and job accomplishments (outputs)
A list of major outputs for a job specialty, grouped by normal, off-normal, and emergency operations	• The signal/start for each major output • Behaviors • The major outputs (accomplishments)
A list of tasks for each major output	The signal/start for each task and the sequence of the tasks to produce each major outputs (accomplishments)

TIP – H.2: Flowcharting Guidelines, Continued

Basic Symbols

There are several universal symbols used to graphically represent a particular behavior in the flowchart process. However, when using this process to graphically represent a job and the associated behaviors/tasks and major outputs, you can do it with the following five (5) basic flowcharting shapes. You read a flowchart by following the lines with arrows from shape to shape. The shape of the symbol makes it easy for the reader to recognize what is happening in the situation that is being flowcharted.

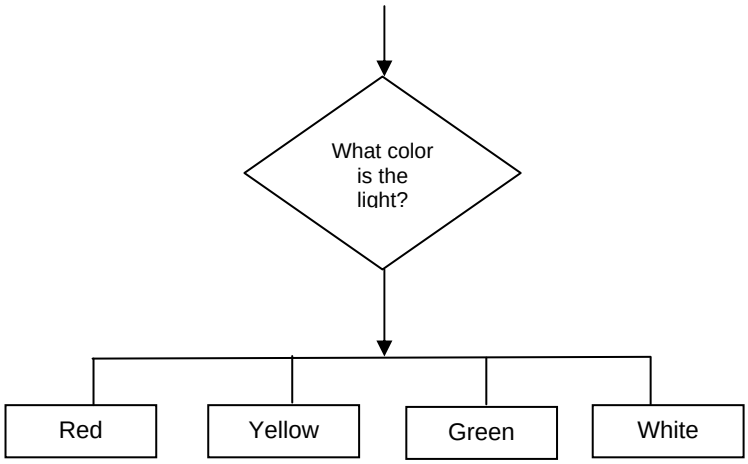
Shape	Meaning
	**Start / End** – This shape tells you where the flowchart begins and ends; flowcharts usually have one starting point but can have multiple end points.
	**Directional Arrows** – Indicates the flow or sequence of actions through the chart; charts usually flow from top to bottom or left to right; you read the flowchart by following the arrows from shape to shape.
	**Decision** – Asks a question, and the answer to the question determines which directional arrow you follow when leaving the shape. The arrows are usually labeled “yes” or “no”, but you can label them any way you want as long as the meaning is clear. The shape has one (1) “input arrow” and can have two (2) or three (3) exit points. If you need more than 3 points, see the first block of text on the next page.
	**Action** – The rectangle is the most common shape used to show a process, task, operation or other action. It shows something that has to be done or an action that has to be taken. The text in the shape almost always includes a verb.
	**Connects** – this shape is used when you need to connect to another page or section of the chart. Draw a directional arrow to the connecting shape and label the circle with a letter. Copy the shape with the letter to the start of the flowchart on the page that you want to connect to. This activity should be avoided, but sometimes it may be necessary due to the complexity of the “action” being charted.

You do not have to use these symbols to construct your flowcharts you will need to produce to support your task analysis efforts as long as you include each element (stimulus, behavior, task, steps, output, accomplishment, etc.) in its own box of information.

TIP – H.2: Flowcharting Guidelines, Continued

When You Need More than Three Exit Points

If you need for more than three possible exit points from the decision shape, then use the following or similar tactic for representing the correct number of possible responses to the text in the decision shape:



Software Tools

This process can be labor intensive, if you try to construct and maintain the flowcharts manually. The following two tools are optional flowcharting software tools that have been approved for use on the CG standard workstations. If you do not already have access to these tools, check with your supervisor for gaining access.

- Microsoft Office: Visio 2007
- Mindjet – MindManager 8

You should also keep in mind that Word and PowerPoint programs in the Microsoft 2007 Office Suite also have flowcharting shapes that can be added via the “Insert” tab located in the ribbon header.

Flowcharting Summary

Flowcharts are very helpful in understanding a complicated process, particularly when there are many decisions and different actions/steps associated on those decisions. By looking at a flowchart you can visually follow the different paths in the chart to see if action paths can be combined or eliminated for efficient execution of the task. When constructing the chart, the flow of the task can be a linear pathway (in a straight line with one action after the next) or have a branched pathway if decisions are involved.

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TIP – H.3: Learner Motivation – Why This Might Be Important

Introduction

People approach learning with varying degrees of motivation. Some enthusiastically pursue any new information and enjoy learning for learning's sake. However, others are reluctant learners even when their jobs depend on it. Assessing learner motivation can seem confusing when you first begin, however there is a lot of value in learning how to do this correctly and knowing when it should be used. Use this tip sheet when your target audience analysis indicates that the learner's motivation or attitude may have some influence on the learning outcome.

Tip Sheet Sources

The primary sources for the following information are:

- Building Expertise – Cognitive Methods for Training and Performance, by Ruth Colvin Clark, Chapter 15 – Motivation and Expertise and Chapter 16 – Motivating your Learners, pages 337 through 375, Third Edition, 2008, published by Pfeiffer, San Francisco, CA
- *Planning, Packaging, and Presenting Training – A Guide for Subject-Matter Experts*, by Gene E. Custer, pages 42 through 55, published by University Associated Inc, San Diego, CA, 1986

What is Motivation

Ms. Clark defines motivation as, "the mix of beliefs that causes one to initiate a learning activity, to adopt goals related to the activity, to invest effort to achieve the goals and to reflect on outcomes in ways that lead to improved and sustained effort. Beliefs are the fuel that trigger and sustain these activities."

Why is Motivation Important

Successful learning is serious and, sometimes, hard work. But that does not mean that the learning process has to be harder than it needs to be. Understanding how your target audience learns best and understanding how motivated they are to attend the training can go a long way to designing and delivering a successful course. Based on Ms. Clark's definition of motivation, it would be very difficult, if not impossible, to teach someone to be motivated to learn without first addressing his/her belief structure. However, it is possible to promote productive belief learning goals by choosing the right instructional strategies and creating motivational environments that promote learning.

TIP – H.3: Learner Motivation – Why This Might Be Important, Continued

Creating a Environment for Success

Research has revealed that motivation beliefs are related to self-confidence and/or self-control, interest in the content, and task value. The instructional environment you create can help learners adopt more productive beliefs about themselves and their learning outcomes. The following list is from Chapter 16 of Mr. Clark's book and includes some suggested strategies for helping to set up a successful learning environment.

- Promote self-confidence by structuring for success by:
    - Constructing tasks of optimal challenge
    - Matching the instructional architecture with learner background knowledge and skills
    - Assigning relevant practice with feedback
    - Incorporating social models of success
    - Offering guidance regarding course prerequisites
- Encourage Mastery (Progress) Goal Orientations
    - Establish a criterion-reference learning environment
    - Encourage attributions to control causes
    - Establish technique goals as well as outcome goals
- Exploit personal and situational (emotional or cognitive) interest by correlating with lesson content
    - Techniques to promote cognitive situational interest:
        - Write understandable and coherent lessons
        - Use language and examples that are concrete and vivid
        - Use conversational tone to engage readers through personalization
        - Present new content in familiar terms
    - Leverage personal interest to make content understandable
    - Make relevance of content explicit to create value

TIP – H.4: Target Audience Characteristics – Design Factors

Introduction

Determining which target audience characteristics are relevant factors for your project can often be challenging. Remembering that the reason for conducting the analysis is to determine any specific differences which could influence the effectiveness of the training, can help you focus on the important factors. The following information provides some guidelines as to how a particular target population factor can influence your design considerations for the resident training program you are going to develop.

Tip Sheet Source

The information in this tip sheet has been adapted from the following source:

FKA Designing Instruction Workshop – Support Manual ©, Analysis, Population Factors, pages 45 – 47
Friesen, Kaye, and Associates, http://www.FKA.com

Directions

Locate your target audience relevant or key characteristic in the "Population Factor" column to determine the "Design Considerations" for your instructional program. Refer to the Glossary for term definition.

Target Audience Characteristics – Design Factors Tip Sheet		
Category	**Population Factor**	**Design Considerations**
1. Aptitude / Abilities	Current knowledge of work or subject matter area (Work experience)	• Examples • Detail of content • Amount of practice • If limited or no experience, need to paint realistic picture of the job
	Current job	• Examples • Motivation
	Current performance	• Amount of practice • Transition strategy
	Relevant background and experience (Related experience)	• Amount of practice • Transition strategy • Detail of content

Continued on next page

TIP – H.4: Target Audience Characteristics – Design Factors, Continued

Directions, Continued

Target Audience Characteristics – Design Factors Tip Sheet		
Category	**Population Factor**	**Design Considerations**
2. Tools & Prerequisite Skills	Specific tools and prerequisite skills	• Availability of equipment/tools • Amount of practice • Detail of content • Examples • Class size and/or scheduling of sessions
3. Learning and Language Preferences	Vocabulary or terminology understanding • Technical • Non-Technical	• Examples • Detail of content • Amount of practice • If limited or no experience, need to paint realistic picture of the job
	Overall language skill level (mastery of spoken and written language)	• Choice of vocabulary • Clarity of directions • Amount of facilitation • Timing for exercises/practices • Amount of writing required • Type of non-performance questions • If low, more emphasis on demonstration and more use of visual images
	Overall reading skill level	• Reading level of course materials • Amount of reading required • If advanced, may be able to capitalize on independent learning skills • Use of complementary graphic, narrations, etc.
	Overall math skill level	• Job aids • Use of calculators • Timing for exercises/practices
	Overall computer literacy level	• Use of computer as a training tool • Use of computer related examples • If advanced, may be able to capitalize on independent exercises/practices • Timing for exercises/practices

Continued on next page

TIP – H.4: Target Audience Characteristics – Design Factors, Continued

Directions, Continued

Target Audience Characteristics – Design Factors Tip Sheet		
Category	**Population Factor**	**Design Considerations**
3. Learning and Language Preferences. continued	Overall verbal communication and interpersonal skill level	• Amount of discussion • Degree of facilitation • Presentations by learners • Mix of individual and group methods • If low, use care in choosing group method • If low, more attention to set-up for group method
	Learning preference	• Strategy • Methods • Media
4. Attitudes	Attitude to organization	• Review of expectations • Time to establish positive atmosphere • Transfer strategy • If negative/resistant, strong facilitation needed
	Attitude to job	• Review of expectations • Time to establish positive atmosphere • Motivation • Transfer strategy • If negative/resistant, strong facilitation needed

	Attitude to training	• Review of expectations
		• Time to establish positive atmosphere
		• Motivation
		• Transfer strategy
		• If negative/resistant,
		  o strong facilitation needed
		  o provide lots of opportunity for learners to contribute knowledge and experience
		  o be sure to involve learner population during design & development, whenever possible
		  o give more weight to learning preferences

Continued on next page

TIP – H.4: Target Audience Characteristics – Design Factors, Continued

Directions, Continued

Target Audience Characteristics – Design Factors Tip Sheet		
Category	**Population Factor**	**Design Considerations**
5. Audience Specifics	Overall length of time with the organization	• Time to establish atmosphere • Grouping for training sessions (when mixed experience levels) • Methods, media • Examples
	Age	• Examples • Methods
	Gender	• Meaning and respectful media images • Mix of collaborative and competitive methods • Examples
	Culture or heritage	• Meaning and respectful media images • Examples • Types of group activities • Amount of interaction

APPENDIX I

Job Aids for Design

Table of Contents

These job aids are designed to work in concert with the Design phase worksheets presented in Appendix J. There is not a one-to-one relationship since not all jobs aids need a standard way of capturing the associated data.

Use the following listing to access the job aid for the task you want to complete.

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JA – I.1: How to Write Terminal Performance Objectives

Purpose	This job aid describes how to write a Coast Guard terminal performance objective (TPO). When executed correctly, you will be able to write TPOs that accurately describe the tasks that students must be able to perform upon completion of instruction.
Who should use this JA	You should use this job aid if you are a course developer responsible for developing performance objectives for a resident instruction program. Ideally, you are a graduate of the Coast Guard Course Designer Course (CDC) or the SABA Knowledge Service Peak Performance System workshops (previously known as Accomplishment-Based Curriculum Development (ABCD) workshops)
When you should use this JA	Use this job aid after a task has been determined for the particular job specialty.
How to use this JA	Follow the steps as literally as is practical, and in the order presented. Inputs are provided from Analysis phase, using the Task Detailing information you collected (along with other analysis data using a methodology from Volume 2 of the SOP (such as FEA, JTA, TRA, etc.) If you have no task data whatsoever, you have reached this job aid prematurely and you should go back to Chapter 3 to complete your task analysis for the project.

JA – I.1: How to Write Terminal Performance Objectives, Continued

Overview

As mentioned in Chapter 4, the purpose of TPOs is to describe the task that students must be able to perform upon completion of the instruction. TPOs guide the course developer in designing and developing instructional materials for the course.

Performance Statement

Step 1 and 2 of this job aid deals with the performance statement. The performance statement describes the behavior and the output of the task that the graduate will perform on the job. The statement consists of an action verb and the output resulting from the action.

The performance in the performance statement must match the performance expected on the job. Do not compromise on the performance statement in the PO.

Conditions Statements

Steps 3 through 6 of this job aid address the conditions statements. The conditions informs us, as applicable, what information cues the graduate to perform the task, what the graduate is given to perform the task, and what the graduate will have to do without when performing the task. The statement should match as closely as possible to those on the job that are critical to task performance.

The conditions statements may also alert us to the ***limitations of the training environment*.** For example, the Emergency Medical Technician curriculum can only guarantee that graduates can perform cardiopulmonary resuscitation (CPR) on a mannequin, not on a live patient. Therefore, the conditions statement will tell us that the CPR will be performed “on a mannequin.”

Caution!

Be careful not to overload your conditions statement. DO NOT put anything in the statement unless it is either necessary to perform the behavior or affects the actual performance of the behavior.

Standard Statements

Steps 7 through 9 of this job aid address the standard statements. The standards tell how well the PO must be completed. Clear standards for the output, and where necessary, the actions are the foundation for the testing and training of the PO.

The standards in the standards statement must match the standards expected on the job. Do not compromise on the standards in the PO.

JA – I.1: How to Write Terminal Performance Objectives, Continued

Format

The worksheet below aligns with the steps of the job aid on the following pages.

WS-J.1	Terminal Performance Objective(s)		
Project			
Designer		**Date**	
Task Number		**Objective Number**	
RPQ *(if applicable)*	**Step 1**		
Conditions *Cue that signal the performer to act / Stimulus* *Tools and equipment needed:* *References, job aids, and assistance needed:* *Physical Environment*	**Step 3 - 6**		
Performance	**Step 2**		
Standards *Time* *Accuracy* *Safety* *Security* *Process / Product*	**Step 7 - 9**		
TPO Statement	**Step 10**		

JA – I.1: How to Write Performance Objectives, Continued

Steps

Step	Action
1	If the course is developed from EPQ's / RPQ's (off which the task list was developed), you may wish to reference that EPQ in the first block. If not, state N/A or None.
2	List the Task Statement (from RPQ) or task list (also on Analysis WS_F.1: Task Detailing). The performance statement must match the performance expected on the job. Do not change the Task statement when writing the performance statement in the TPO (unless due to limitation in the training environment, or to more accurately represent the behavior expected of students that is outlined in the RPQ).
3	Conditions: Transfer from your analysis data, the **signal/stimulus** that prompts the start of the task to the conditions block. At this point, you also have to start considering if there are any constraints on testing the task and record the updated conditions at his time. Following are some examples of cues: • "Upon hearing the General Quarters alarm…" • "At the smell of burning food…" • "When the light goes out…" • "When the door feels hot to the touch…" • "On the last day of a voyage…" • "At the beginning of a work shift…"
4	Conditions Transfer from your analysis data, the **tools and equipment** needed in performance of this task to the conditions block Examples include a(n): • Oscilloscope • Standard workstation • Signal flare • Blood pressure cuff
5	Conditions Transfer from your analysis data, the **references, job aids, and assistance** needed in performance of this task to the conditions block. Assistance includes any persons or organizational units with whom the performer interacts when performing the task. Examples include: • The Joint Travel Regulations • The manufacturer's technical manual • The "Writing a Test for a PO" job aid • With a teammate • Supervisor • Servicing personnel office

Continued on the next page

JA – I.1: How to Write Terminal Performance Objectives, Continued

Steps, Continued

Step	Action
6	Conditions**:** Transfer from your Analysis data, the **Safety Requirements, Performance Locations/Enables/Inhibitors** to the conditions block. These are things that limit or control how the task is completed or are restrictions placed on the performance or environment. Examples include: • "underwater" • "while attached to a tether" • "from a sitting position" • "while wearing a breathing apparatus" • "without any light" • "with one hand"
7	Standards: Transfer from your Analysis data, the standards needed for task accuracy and completeness to the Standards Block. Be sure to consider if is necessary to write standards for the student's actions as well as the output of the PO. Examples include: • "completed the first time without error" • "making no 'major' errors and less than three 'minor' errors • "form must be filled out completely"
8	Standards: Transfer from your Analysis data, the standards needed for safety (safe task completion), following all security, standard operating procedures, or other published standard to the Standards Block. Examples include: • "without violating grounding procedures" • "using the checklist provided in the SOP" • "following every step in the job aid"
9	Standards: Transfer from your Analysis data, any time or rate of production requirements to the Standards Block. These are usually time (i.e. the maximum time allowed for production of a single output) or rate of production (i.e. the specific number to be produced in a given time). Examples include: • "entering three travel claims an hour" • "within 20 minutes"
10	Draft your complete Terminal Performance Objective Statement combining all three elements: Conditions, Performance and Standards. **Note**: *You will have a chance to review / revise this TPO based on testing constraints in the next part of the Design phase.*
End of Procedure	

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JA – I.2: How to Select Evaluation Criteria

Purpose	This is a job aid to help you select evaluation criteria for a task lesson.
Who should use this JA	You should use this job aid if you are a course designer responsible for designing preparation activities. Ideally, you are a graduate of the Coast Guard Course Designer Course (CDC) or the SABA Knowledge Service Peak Performance System workshops (previously known as Accomplishment-Based Curriculum Development (ABCD) workshops)
When you should use this JA	Use this job aid *after* you have written the TPOs.
How to use this JA	Follow the steps as literally as is practical, and in the sequence provided. The reason you should start thinking about evaluation criteria right now is because you have already detailed the conditions from the performance objective and now you just have to transfer it to the performance test checklist. In the Development phase you will actually build the performance tests, but now is a good opportunity to capture the evaluation criteria.
Worksheet	Use of worksheet WS-J.2 is valuable in helping you capture the decision made when selecting your evaluation criteria. It also makes it easier to transfer this information to WS-N.1 when developing your performance test checklists.

JA – I.2: How to Select Evaluation Criteria, continued

Format

Use WS-J.2 as a tool to capture your evaluation criteria selection decisions; but it is also valuable in the development of your performance test checklist (WS-N.1).

WS-J.2	Evaluation Criteria Selection Worksheet		
Project			
Designer		Date	
Terminal Performance Objective		**TPO Number**	
	Step 1		
Testing Parameters / Constraints (Conditions)	**Step 2**		
Standards NOT required for Task Proficiency	**Step 3**		
Modifications to TPO (if applicable)			
	Step 4		
Student may use the following	Job Aid ☐	Reference Materials ☐	Other *(list)*
Evaluation Criteria *(correct performance will be based on this)*	**Step 5**	Product Only ☐ Process and Product ☐	
Accuracy *(list criteria as applicable)*	**Step 6**		
Time *(list criteria as applicable)*			
Safety *(list criteria as applicable)*	**Step 7**		
Rate of Production *(list criteria as applicable)*			
Other Criteria: _____	**Step 6**		

JA – I.2: How to Select Evaluation Criteria, Continued

Steps

Step	Action
1	Transfer the Terminal Performance Objective as captured on WS-J.1.
2	Review the Course Parameters and Constraints for testing and evaluation as noted during the Analysis phase.
3	Determine if any of the standards are NOT required for task proficiency. **Note: Typically, all standards are required for task proficiency.**
4	Reword the TPO statement, removing any standards not required (as identified in Step 3) and modifying conditions as necessary to account for any testing constraints as identified in Step 2.
5	Determine type of evaluation required for successful task completion. Chapter 4 discusses the differences between product evaluation and process / procedure evaluation. If it only matters what the resulting "product" looks like at the end and how it gets done doesn't matter, then select "Product Only" – Typically we will be evaluating student on HOW (process) they perform, as well as successful performance of the specified task resulting in a measurable / observable output (product).
6	From WS-J.1, identify those criteria that will determine 100% accuracy and group into appropriate categories to create your evaluation criteria "blocks" – these should be tailed to each specific TPO. (i.e. Timing, Product outcome (accuracy), Safety, Rate of Production, Security, etc)
7	Continue completing the form by listing those criteria into the appropriate "blocks/categories" on the worksheet.
End of Procedure	

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JA – I.3: How to Determine an Instruction Strategy (Group and Sequence Tasks)

Purpose

This job aid is provided to help you sequence tasks to create your course "blueprint" or course map, identifying the different units (if course is broken up into units), and determine activities within a lesson.

Who should use this JA

You should use this job aid if you are a course developer responsible for sequencing instruction. Ideally, you are a graduate of the Coast Guard Course Designer Course (CDC) or the SABA Knowledge Service Peak Performance System workshops (previously known as Accomplishment-Based Curriculum Development (ABCD) workshops).

When you should use this JA

Use this job aid *after:*

- Analysis completed (worksheet F.1)
- TPOs have been written
- Course activities and evaluation criteria have been selected

How to use this JA

Follow the steps as literally as is practical, and in the sequence provided. A worksheet for each of the three parts of "Determining Instructional Strategy" have been provided for you in *Appendix J*.

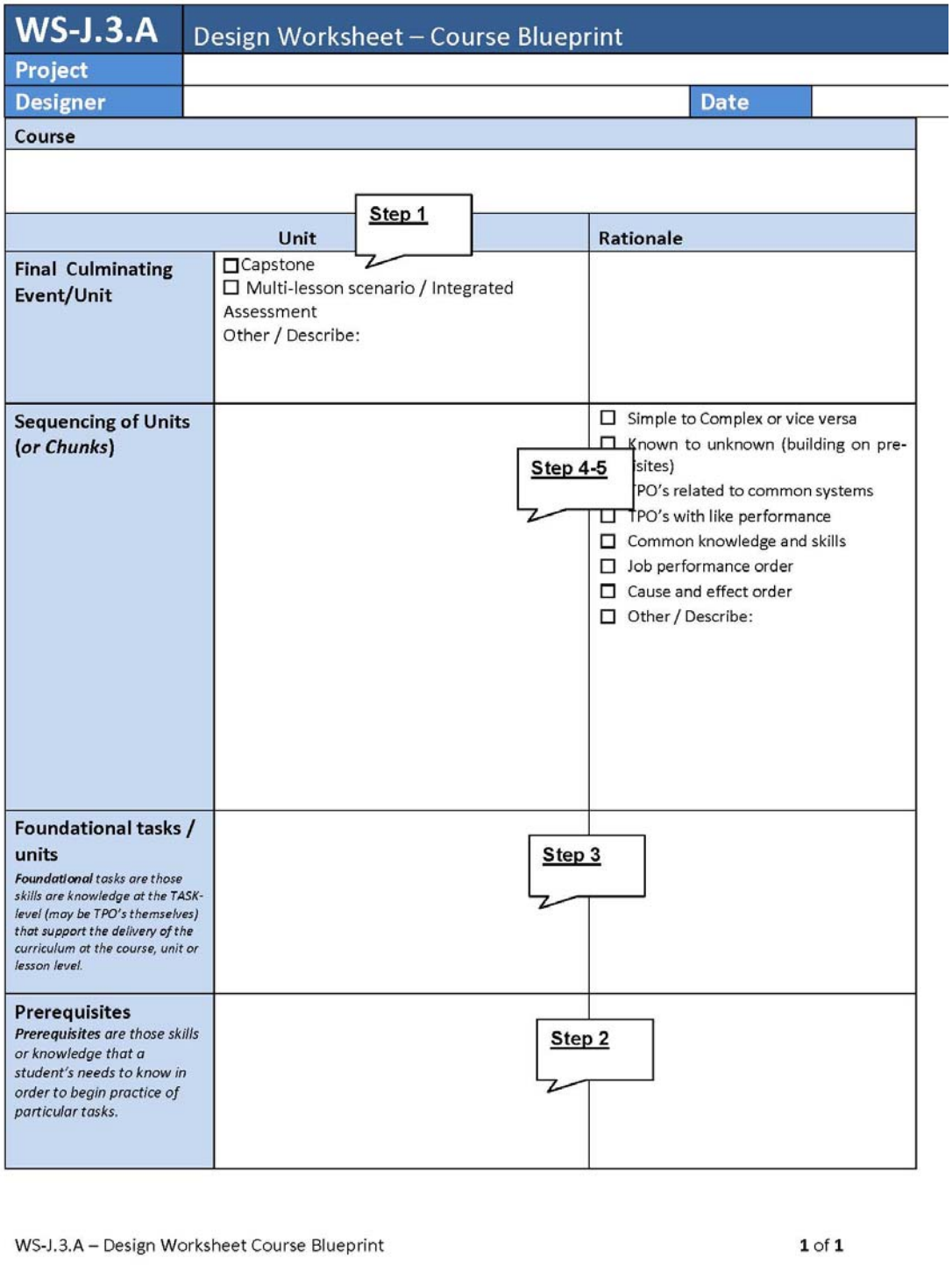
From the analysis phase, you should have a list of tasks, in order of occurrence, within each job output. Use the job aids from the table below to organize: your course into units, your units into lessons, and your lesson into topics or activities.

For short courses, you may not have units within your course, just multiple lessons – if so it might be easiest to skip JA-I.3.A altogether and just go straight to JA-I.3.B.

Job Aid	Element	Hierarchy
JA – I.3.A	1 or more UNITS	COURSE
JA – I.3.B	1 or more LESSONS	UNIT
JA – I.3.C	1 or more TPOs	LESSON
	Smaller parts of a lesson that are part of the lesson design	TOPIC

JA – I.3.A: How to Create a Course Blueprint

Course Blueprint



WS-J.3.A	Design Worksheet – Course Blueprint	
Project		
Designer		Date
Course		

Step 1

	Unit	Rationale
Final Culminating Event/Unit	☐ Capstone ☐ Multi-lesson scenario / Integrated Assessment Other / Describe:	
Sequencing of Units (*or Chunks*)	Step 4-5	☐ Simple to Complex or vice versa ☐ Known to unknown (building on pre-sites) ☐ TPO's related to common systems ☐ TPO's with like performance ☐ Common knowledge and skills ☐ Job performance order ☐ Cause and effect order ☐ Other / Describe:
Foundational tasks / units ***Foundational** tasks are those skills are knowledge at the TASK-level (may be TPO's themselves) that support the delivery of the curriculum at the course, unit or lesson level.*	Step 3	
Prerequisites ***Prerequisites** are those skills or knowledge that a student's needs to know in order to begin practice of particular tasks.*	Step 2	

WS-J.3.A – Design Worksheet Course Blueprint 1 of 1

JA – I.3.A: How to Create a Course Blueprint, Continued

Instructions

Follow the steps in the table below to group and sequence tasks in order to create a course blueprint.

Before entering the step action table below, review your analysis data, as you may determine that additional task grouping is necessary due to excessive pre-requisites or foundational skills/knowledge identified for the course.

Note*: These sub-steps may be necessary when excessive pre-requisites or foundational skills / knowledge are identified for course – see Appendix K, for examples.*

a. Group any clusters of *prerequisite* knowledge and skills into a core unit of instruction. Prerequisites are those skills or knowledge that a student's needs to know in order to begin practice of particular tasks.

b. Group performance objectives that relate to a common system or require the same type of action.

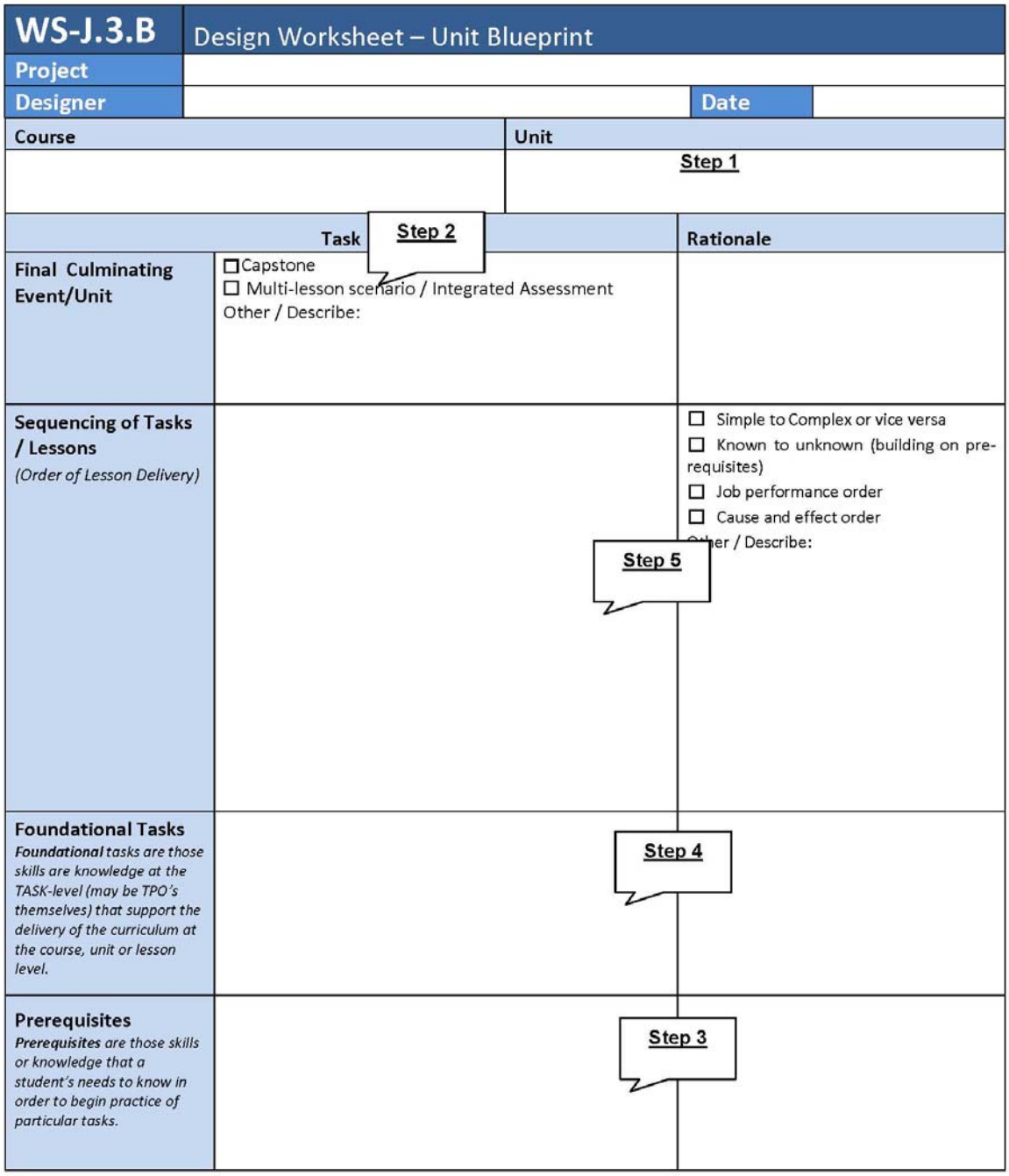
c. Group common *foundational* skills and knowledge. Foundational tasks are those skills are knowledge at the TASK-level (may be TPO's themselves) that support the delivery of the curriculum at the course, unit or lesson level.

Steps

Step	Action
1	Identify the final course evaluation, other special activities, or capstone event that is the culmination of all other units.
2	List the prerequisite skills and knowledge or introductory units required for the course. Explain rationale.
3	List the foundational tasks or units that follow a logical sequence immediately after the prerequisite elements. If you have multiples tasks or units within the foundational block, identify those "opening units" and order the rest in appropriate order of delivery prior to moving to core units of curriculum. Explain rationale.
4	Once units from steps 2 and 3 have been identified, list the remaining units in logical order (i.e.: by job output/job specialty outputs that relate to a common system or require the same type of action, or common knowledge and skills). Explain rationale.
5	Modify this list of units from step #4 until the order reflects those units that need to be taught before others, or if ordering does not matter, include that explanation in Rationale block.
End of Procedure	

JA – I.3.B: How to Create a Unit Blueprint

Unit Blueprint



WS-J.3.B	Design Worksheet – Unit Blueprint		
Project			
Designer		Date	
Course		Unit	
		Step 1	
	Task (Step 2)		Rationale
Final Culminating Event/Unit	☐ Capstone ☐ Multi-lesson scenario / Integrated Assessment Other / Describe:		
Sequencing of Tasks / Lessons *(Order of Lesson Delivery)*	Step 5		☐ Simple to Complex or vice versa ☐ Known to unknown (building on pre-requisites) ☐ Job performance order ☐ Cause and effect order Other / Describe:
Foundational Tasks ***Foundational** tasks are those skills are knowledge at the TASK-level (may be TPO's themselves) that support the delivery of the curriculum at the course, unit or lesson level.*	Step 4		
Prerequisites ***Prerequisites** are those skills or knowledge that a student's needs to know in order to begin practice of particular tasks.*	Step 3		

WS-J.3.B – Design Worksheet Unit Blueprint 1 of 1

JA – I.3.B: How to Create a Unit Blueprint, Continued

Introduction

Follow the steps in the table below to group and sequence tasks in order to create a unit blueprint.

***Note**: Larger courses (like A-schools) may not "fit" on this worksheet, due to the vast number of tasks that exists within each unit. Therefore, a modification to the worksheet is recommended. Just because a worksheet is provided, don't try to force a fit. You can use the concept to collect and sequence tasks in a form that will work for your situation. One such example as done within the ET-A school HF unit is shown in Appendix K, Examples.*

Steps

Step	Action
1	Add name of unit to Header
2	Identify the final unit evaluation, special activities, or tasks that are the culmination of all other lessons.
3	List the prerequisite skills and knowledge or introductory lessons (*lessons not based off any TPOs*) required for the unit. Explain rationale.
4	List any foundational tasks that are "core" to the unit, and explain the rationale. Core tasks are those tasks or lessons that are TPOs, but should be delivered at the start of the unit. Explain rationale.
5	a. List the remaining tasks for the unit. b. Group any of those tasks together that relate to a common system, require the same action or common knowledge/skill c. Within each task grouping, identify any introductory lessons and move them to the front d. Rearrange and list the tasks in a logical sequence to be delivered after the tasks from steps 3 and 4 (i.e.: by performance objectives that relate to a common system or require the same type of action, or common knowledge and skills). e. List all remaining tasks whose order is independent of others already sequenced. f. Explain rationale. *NOTE: If prerequisite skills / knowledge lessons (step 3) or foundational tasks (step 4) are not taught at start of unit, but still exist - include them within the sequencing of lessons (in this block) as appropriate and explain in the rationale (i.e. if they are instead taught as "just in time" delivery before a particular task or lesson.*
End of Procedure	

JA – I.3.C: How to Create a Lesson Blueprint

Lesson Blueprint (page 1)

WS-J.3.C	Design Worksheet – Lesson Blueprint	
Project		
Designer		Date
Course		Unit
Terminal Performance Objective(s)		
Step 1		
Lesson Activity	Description	
Summary and Review	Step 12	
Assessment (WS-N.1)	Step 2	
☐ Integrated PT (Step 3)		
List TPO's included:		
Practice Exercise (WS-N.2)	Final Level of Simulation	
☐ Integrated Practice (Step 4)	Step 6	
	Intermediate Level of Simulation	
☐ Special Learning Tactics (Step 5)	Step 8	
	First Level of Simulation	
	Step 7	
Demonstration	Step 11	
Content (WS-N.3)	Step 10	
Instructional Method(s)	☐ Instructor-led / Lecture ☐ Self paced tutorial/exercise ☐ Guided Practice ☐ Blended solution (describe)	
Introductory Activity	☐ Questions (Poll audience) ☐ Review / Recall (Step 9)	

WS-J.3.C – Design Worksheet Lesson Blueprint 1 of 2

JA – I.3.C: How to Create a Lesson Blueprint, Continued

Introduction

The purpose of this job aid is to help you design a lesson plan that includes *brief descriptions* of the activities that are recommended during each of the following activities throughout your lesson. The actual *development* of these activities and specific instructions for each will be built on during the Chapter 5: Development. The key parts of a Lesson Plan that should be outlined at this stage:

- Introduction
- Content delivery
- Demonstration and examples
- Practice activities and feedback
- Assessment
- Summary and review

Also included are decision tables to help you document media and material selection for delivering instruction, student to instructor ratios, and estimated length of time for each activity.

Steps

Step	Action
1	List the Terminal Performance Objectives (tasks) that will be covered in the delivery of this lesson (typically 1 TPO = 1 Lesson).
2	Describe the Evaluation Criteria (Performance Test Checklist, WS-N.1) in the Assessment block.
3	Select the box if this is an Integrated Performance Test (multiple tasks combined into one assessment).
4	Select whether *Integrated Practices* will be needed (due to complex tasks or multiple TPO's in one lesson). Integrated practices strengthen the overall learning and sequencing strategies; they provide students with the opportunity to practice complex behaviors presented within the same lesson; or more than one task practices together at a high level of simulation.
5	Select whether *Special Learning Tactics* may need to be considered or if special learning concerns may exist.

Continued on the next page

JA – I.3.C: How to Create a Lesson Blueprint, Continued

Steps, Continued

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>6</td><td>List your FINAL level of Simulation (which should be equal to (or as close to) that expected during the Performance Test.</td></tr>
<tr><td>7</td><td>Select the approximation that is appropriate for the first practice of the task as the FIRST Level of Simulation. The first level of simulation should be as high as the students can handle without error.
<table>
<tr><th>IF the range between the first and final simulations is…</th><th>THEN</th></tr>
<tr><td>Narrow</td><td>Select only the first and final simulation levels for practice.</td></tr>
<tr><td>Wide</td><td>Select an approximation that is between the first and final simulation levels for intermediate practice.(step 3).</td></tr>
</table>
</td></tr>
<tr><td>8</td><td>List your Intermediate levels of simulation (if applicable).</td></tr>
</table>

Continued on the next page

JA – I.3.C: How to Create a Lesson Blueprint, Continued

Steps, Continued

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>9</td><td>
Describe the content needed to support practice / performance of task(s). This could be the pre-requisite skills/knowledge necessary to support this particular task (lesson).

The content delivery is the means by which the student is presented the cognitive behavior or “knowledge” about how to perform the task to be trained in the lesson. The only reason for content in Performance Based training is to determine what students need to know (i.e. nomenclature and safety precautions) before they are allowed to begin to practice. Use the decision table below to determine the instructional method of content delivery.

NOTE: Content Development (and that decision on what is needed) is further explained in Chapter 5, 5.7 – Content Development. Complete decisions as to this section may not be made until that is completed.
<table>
<tr><th>IF…</th><th>THEN the Instructional Method is…</th></tr>
<tr><td>Wide range of entering skills and knowledge in student population</td><td rowspan="2">Self-instructional materials (e.g., homework, student guide, CBT, textbook, videos)</td></tr>
<tr><td>Number of hours available for instruction are very constrained</td></tr>
<tr><td>Behavior is mostly physical</td><td rowspan="5">Instructor-lead</td></tr>
<tr><td>Development time is very constrained</td></tr>
<tr><td>Less than 100 persons in work target population</td></tr>
<tr><td>Procedures to change within two years</td></tr>
<tr><td>Course is needed for three years or less</td></tr>
</table>
Good Content Blocks have the following characteristics. They:
• Define any new terms or equipment or parts of equipment.
• Describe any prerequisite skills or knowledge applicable to the tasks that have NOT been learned previously.
• Describe any precautions involving safety, security, or legal issues.
• Briefly describe any background information or subject matter or “whys” that are relevant to the task and make learning easier.
</td></tr>
</table>

Continued on next page

JA – I.3.C: How to Create a Lesson Blueprint, continued

Steps, continued

Step	Action
10	Describe what type of demonstration or instructor-led activity will be used to guide the students through the performance before they begin to practice themselves. Demonstration involves showing and explaining the proper procedure to complete a task or step. If demonstration is not appropriate method for training the performance objective, other appropriate activities are case-studies and by the use of examples. A good way to cut down on the amount of content delivered via lecture is to include the delivery of that supporting content DURING a demonstration.
11	Describe the introductory activity for the lesson. A good introductory activity has the following characteristics: • Describe the value of learning the task in the lesson. • Describe the task in relation to what has been previously trained and what will be trained after this task. • Describe how to show the students a completed task product with its required quality characteristics emphasized. • Describe how the students will be practicing the task and be tested on the task.
12	Complete the Review and Summary block to: • Include any follow-though activities • Provide students with job aids or memory aids for retention • Allow instructors to provide students with last-minute considerations about newly learned tasks when they return to the field
Continue to Step 13 for completing page 2 of the Lesson Blueprint	

Continued on next page

JA – I.3.C: How to Create a Lesson Blueprint, Continued

Steps, Continued

Step	Action
13	Sequence activities for a lesson as follows: Select the introductory activity as the first activity. • Select content (ideally as homework before class time, if appropriate) as the next activity (-ies). • Select any demonstration activity as the next activity. • Select the order of practice activities in accordance with these rules: a. Practice behaviors with *similar signals* close together. b. Practice behaviors with *similar responses* close together. c. Practice all else in typical job order. d. For the final practice, practice the entire task in typical job order, raising the level of simulation to the same level as used during the task performance test. • Select the performance test as the last activity of the lesson. • Then conclude with summary and review.

Continued on the next page

JA – I.3.C: How to Create a Lesson Blueprint, Continued

Lesson Blueprint (Page 2)

Following is the second page of a lesson blueprint.

WS-J.3.C	Design Worksheet – Lesson Blueprint		
Project			
Designer		Date	

Activity *Presentation / Demonstration / Practice / Lab / Assessment / Capstone*	Media *CBT / Paper-based / graphics / video / audio / Computer*	Student-Instructor Ratio	Length of Time
Step 13	Step 14	Step 15	Step 16

Comments:

WS-J.3.C – Design Worksheet Lesson Blueprint 2 of 2

JA – I3c: How to Create a Lesson Blueprint, Continued

Steps, Continued

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>14</td><td>Use the decision table below to determine the type(s) of media to use for the task
<table>
<tr><th>IF…</th><th>AND…</th><th>THEN select…</th></tr>
<tr><td>Task is job-aided</td><td>→</td><td>Job aid.</td></tr>
<tr><td rowspan="5">Design prescribes source of content as self-instructional</td><td>Long time for development</td><td rowspan="4">Computer/web-based training materials.</td></tr>
<tr><td>High budget</td></tr>
<tr><td>200 or more graduates per year</td></tr>
<tr><td>Course to last five or more years</td></tr>
<tr><td>None of the above</td><td>Paper-based self-instructional materials.</td></tr>
<tr><td>Signals are mostly SIGHT</td><td>→</td><td>Drawings/animation, photographs/video.</td></tr>
<tr><td rowspan="2">Signals are mostly SOUND</td><td rowspan="2">→</td><td>Audio recording.</td></tr>
<tr><td>Instructor’s voice.</td></tr>
<tr><td rowspan="2">Signals are mostly TOUCH</td><td rowspan="2">→</td><td>Actual object.</td></tr>
<tr><td>Model of actual object.</td></tr>
</table></td></tr>
</table>

Continued on the next page

JA – I.3.C: How to Create a Lesson Blueprint, Continued

Steps, Continued

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>15</td><td>Propose a recommended student-instructor ratio based on factors such as outlined below[1] (these will be finalized in your curriculum outline development when calculating ICHs).

Also reference: SABA Course Design Job Aid, Task N (page 24) for a flowchart to guide in determining student-instructor ratios.
<table>
<tr><th>IF…</th><th>THEN select ratio…</th></tr>
<tr><td>Injury to self or others could occur</td><td rowspan="2">≤ 2:1</td></tr>
<tr><td>Damage to expensive equipment could occur`</td></tr>
<tr><td>Fine muscular movement is required</td><td>≤ 4:1</td></tr>
<tr><td>Practice without characteristics above</td><td>≤ 6:1</td></tr>
<tr><td>Self-instructional activity (includes CBT/WBT)</td><td>≤ 10:1</td></tr>
<tr><td>None of the above</td><td>As many students that can fit into training room and still effectively participate in the activity as observed by the instructor</td></tr>
</table></td></tr>
<tr><td>16</td><td>Estimate length of each activity</td></tr>
<tr><td>17</td><td>Complete the worksheet and route for approval</td></tr>
<tr><td colspan="2">End of Procedure</td></tr>
</table>

[1] Background: Most of the S:I ratios listed above originate from ABCD and Army Training Doctrine and Command (TRADOC) guidance from the 1980s; authors added “injury to self or others and damage to expensive equipment” as critical considerations when you want decreased ratios. The CBT/WBT is based on experience of self-paced learning, during which more than 10 students per instructor ends up producing students idle for too long awaiting instructor feedback – commercial examples of that standard include Magers CRI and Nelson’s Expert OJT. Max of six to one for hands-on practice is from Army TRADOC, and it is also the max for hands-on according to the National Highway Transportation Safety Administration requirements for EMT schools. The only CG reference is from the HPT/ISD Handbook which gives 12:1 as the ideal ratio for classroom courses.

APPENDIX J

Worksheets for Design

Table of Contents

These worksheets are designed to work in concert with the Design phase job aids presented in *Appendix I*. Use the following listing to access the worksheet for the task you want to complete.

Worksheet Access

Samples of the worksheets are included in this appendix. Refer to the *SOP Downloads (Word Version)* page on TRACEN Petaluma's internet website for the most recent and usable copies of all worksheets and templates:
http://www.uscg.mil/hq/cg1/TracenPetaluma/SOP/default.asp

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WS – J.1: Writing Terminal Performance Objectives

WS-J.1	Terminal Performance Objective(s)		
Project			
Designer		**Date**	
Task Number		**Objective Number**	
RPQ *(if applicable)*			
Conditions *Cue that signal the performer to act / Stimulus* *Tools and equipment needed:* *References, job aids, and assistance needed:* *Physical Environment*			
Performance			
Standards *Time* *Accuracy* *Safety* *Security* *Process / Product*			
TPO Statement			

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WS – J.2: Evaluation Criteria Selection Worksheet

WS-J.2	Evaluation Criteria Selection Worksheet		
Project			
Designer		Date	
Terminal Performance Objective		**TPO Number**	
Testing Parameters / Constraints (Conditions)			
Standards NOT required for Task Proficiency			
Modifications to TPO (if applicable) for instructional setting / testing parameters & constraints			
Student may use the following	Job Aid ☐	Reference Materials ☐	Other *(list)*
Evaluation Criteria *(correct performance will be based on this)*	Product Only ☐	Process and Product ☐	
Accuracy *(list criteria as applicable)*			
Time *(list criteria as applicable)*			
Safety *(list criteria as applicable)*			
Rate of Production *(list criteria as applicable)*			
Other Criteria: _____			

WS-J.2 Evaluation Criteria Selection Worksheet Page **1** of **1**

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WS – J.3.A: Design Worksheet - Course Blueprint

How to Determine an Instructional Strategy

Use the worksheets shown in the following three sub-sections to design your instructional strategy and map your blueprint for the course, unit and lesson level.

WS-J.3.A	Design Worksheet – Course Blueprint		
Project			
Designer		Date	
Course			
	Unit	Rationale	
Final Culminating Event/Unit	☐ Capstone ☐ Multi-lesson scenario / Integrated Assessment Other / Describe:		
Sequencing of Units (*or Chunks*)		☐ Simple to Complex or vice versa ☐ Known to unknown (building on pre-requisites) ☐ TPO's related to common systems ☐ TPO's with like performance ☐ Common knowledge and skills ☐ Job performance order ☐ Cause and effect order ☐ Other / Describe:	
Foundational tasks / units ***Foundational** tasks are those skills are knowledge at the TASK-level (may be TPO's themselves) that support the delivery of the curriculum at the course, unit or lesson level.*			
Prerequisites ***Prerequisites** are those skills or knowledge that a student's needs to know in order to begin practice of particular tasks.*			

WS-J.3.A – Design Worksheet Course Blueprint 1 of 1

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WS – J.3.B: Design Worksheet - Unit Blueprint

WS-J.3.B	Design Worksheet – Unit Blueprint		
Project			
Designer		**Date**	
Course		**Unit**	

Task		Rationale
Final Culminating Event/Unit	☐ Capstone ☐ Multi-lesson scenario / Integrated Assessment Other / Describe:	
Sequencing of Tasks / Lessons *(Order of Lesson Delivery)*		☐ Simple to Complex or vice versa ☐ Known to unknown (building on pre-requisites) ☐ Job performance order ☐ Cause and effect order Other / Describe:
Foundational Tasks ***Foundational** tasks are those skills are knowledge at the TASK-level (may be TPO's themselves) that support the delivery of the curriculum at the course, unit or lesson level.*		
Prerequisites ***Prerequisites** are those skills or knowledge that a student's needs to know in order to begin practice of particular tasks.*		

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WS – J.3.C: Design Worksheet - Lesson Blueprint

Page 1

WS-J.3.C	Design Worksheet – Lesson Blueprint		
Project			
Designer		Date	
Course		Unit	
Terminal Performance Objective(s)			
Lesson Activity	Description		
Summary and Review			
Assessment (WS-N.1)			
☐ Integrated PT *List TPO's included:*			
Practice Exercise (WS-N.2) ☐ Integrated Practice ☐ Special Learning Tactics	Final Level of Simulation		
	Intermediate Level of Simulation		
	First Level of Simulation		
Demonstration			
Content (WS-N.3)			
Instructional Method(s)	☐ Instructor-led / Lecture ☐ Self paced tutorial/exercise ☐ Guided Practice ☐ Blended solution (describe)		
Introductory Activity	☐ Questions (Poll audience) ☐ Story/Video related to task ☐ Review / Recall		

WS – J.3.C: Design Worksheet - Lesson Blueprint, Continued

Page 2

WS-J.3.C	Design Worksheet – Lesson Blueprint		
Project			
Designer		Date	

Activity *Presentation / Demonstration / Practice / Lab / Assessment / Capstone*	Media *CBT / Paper-based / graphics / video / audio / Computer*	Student-Instructor Ratio	Length of Time

Comments:

WS-J.3.C – Design Worksheet Lesson Blueprint 2 of 2

APPENDIX K

Additional Examples for Design

Table of Contents

Example Number	Title
	No additional examples exist to support Design phase at this time.

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APPENDIX L

Tip Sheets for Design

Table of Contents

These Tip Sheets are designed to supplement the information found in the Design

Use the following listing to access the Tip Sheet you want.

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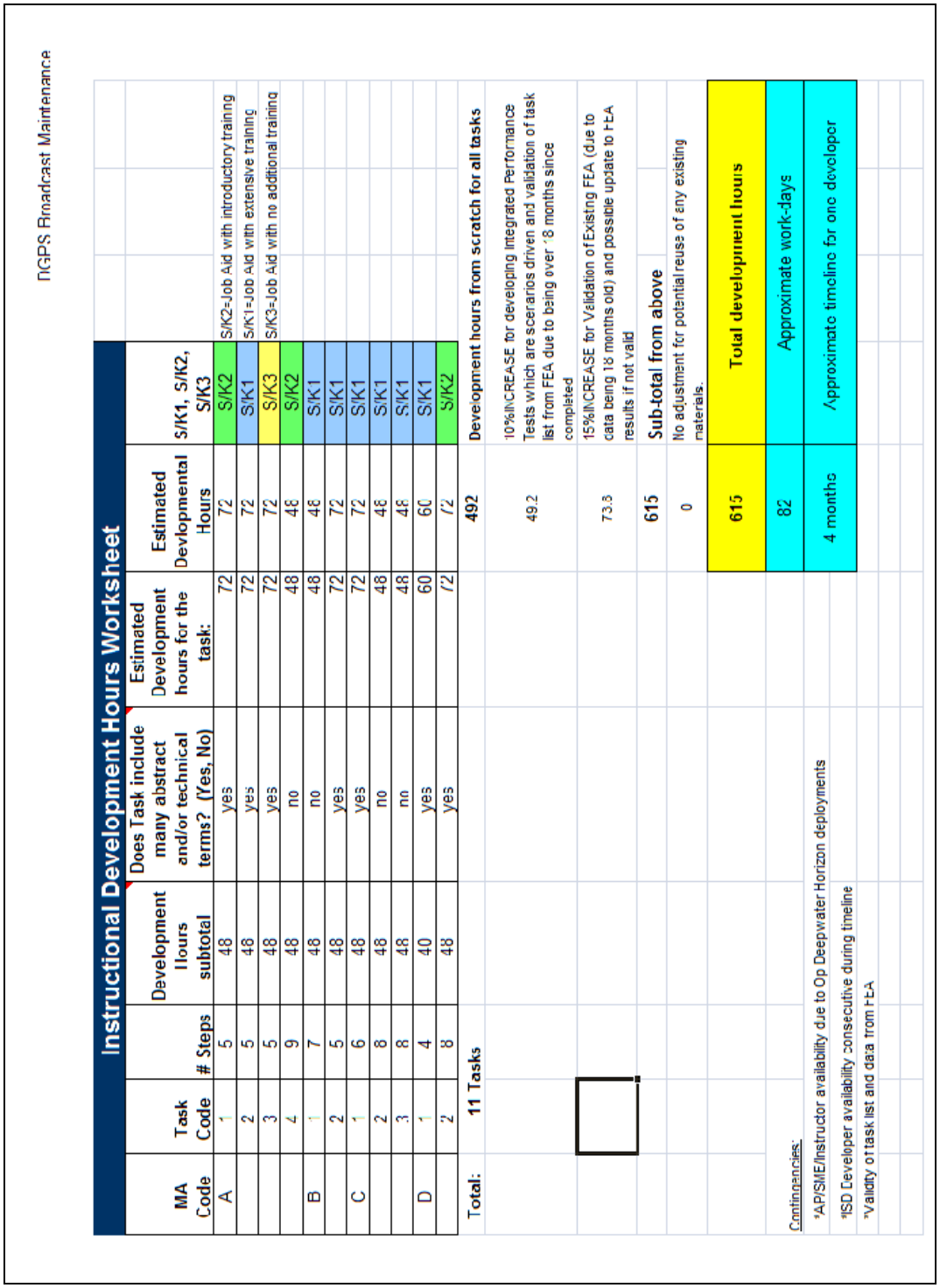
TIP – L.1: Calculation of Developmental Hours

Applicability

This worksheet can be used to provide a better estimate for the amount of time necessary for ONE developer to complete the work associated with Design and Development. You can find this worksheet at the TRACEN Petaluma Curriculum Development webpage (SOP Downloads): http://cgweb.tcpet.uscg.mil/T_Div/CDT/default.asp



NGPS Broadcast Maintenance

Instructional Development Hours Worksheet

MA Code	Task Code	# Steps	Development Hours subtotal	Does Task include many abstract and/or technical terms? (Yes, No)	Estimated Development hours for the task:	Estimated Devlopmental Hours	S/K1, S/K2, S/K3	
A	1	5	48	yes	72	72	S/K2	S/K2=Job Aid with introductory training
	2	5	48	yes	72	72	S/K1	S/K1=Job Aid with extensive training
	3	5	48	yes	72	72	S/K3	S/K3=Job Aid with no additional training
	4	9	48	no	48	48	S/K2	
B	1	7	48	no	48	48	S/K1	
	2	5	48	yes	72	72	S/K1	
C	1	6	48	yes	72	72	S/K1	
	2	8	48	no	48	48	S/K1	
	3	8	48	no	48	48	S/K1	
D	1	4	40	yes	60	60	S/K1	
	2	8	48	yes	72	72	S/K2	
Total:	11 Tasks					492	Development hours from scratch for all tasks	
						49.2	10%INCREASE for developing Integrated Performance Tests which are scenarios driven and validation of task list from FEA due to being over 18 months since completed	
						73.8	15%INCREASE for Validation of Existing FEA (due to data being 18 months old) and possible update to FEA results if not valid	
						615	Sub-total from above	
						0	No adjustment for potential reuse of any existing materials.	
						615	Total development hours	
						82	Approximate work-days	
						4 months	Approximate timeline for one developer	

Contingencies:

*AP/SME/Instructor availability due to Op Deepwater Horizon deployments

*ISD Developer availability consecutive during timeline

*Validity of task list and data from FEA

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APPENDIX M

Job Aids for Development

Table of Contents

Use the following table to access the job aid for the task you want to complete:

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JA – M.1: How to Develop Performance Tests

Purpose	This is a job aid to help you write a performance test for a Coast Guard terminal performance objective (TPO). This job aid follows directly from the design phase efforts of selecting evaluation criteria, so is often performed immediately following that task.
Who should use this JA	You should use this job aid if you are a course designer responsible for writing a performance test for a PO. Ideally you are a graduate of the Coast Guard Course Designer Course (CDC) or the SABA Knowledge Service Peak Performance System workshops (previously known as Accomplishment-Based Curriculum Development (ABCD) workshops).
When you should use this JA	Use this job aid after you receive your task list or list of RPQ's from which the TPOs will be developed, and have selected your evaluation criteria for the objectives.
How to use this JA	Follow the steps as literally as is practical and in the sequence provided.

JA – M.1: How to Develop Performance Tests, Continued

Format Sample format of a performance test checklist:

PERFORMANCE TEST: <*TPO TITLE*>

Student Name: _____ Class #: _____

TPO (RPQ often referenced as well, not required)			
X.X - *<Insert TPO >*			
Student may use the following: *(Click on box to check)*	☐ Job Aid	☐ Reference Material	Other:
EVALUATION CRITERIA: *(Stated outcome of correct performance)*			
Accuracy: *(list criteria as applicable)*	**Safety:** *(list criteria as applicable)*		
Time: *(list criteria as applicable)*	**Rate of Production:** *(list criteria as applicable)*		

STEP	Attempt 1st Y	1st N	2nd Y	2nd N	3rd Y	3rd N
1. List steps in order, and numbered if process is a factor	☐	☐	☐	☐	☐	☐
2. All standard font (present tense)	☐	☐	☐	☐	☐	☐
3. All standard font	☐	☐	☐	☐	☐	☐
4. All standard font	☐	☐	☐	☐	☐	☐
(Phase title - Insert this if you have a phase that allows use of a job aid/reference sheet)						
5. All standard font	☐	☐	☐	☐	☐	☐
6. All standard font	☐	☐	☐	☐	☐	☐
7. All standard font	☐	☐	☐	☐	☐	☐
8. Resulting output as well as process should be captured within PT Checklist (enter more explicit detailed information here about the EO criterion if needed under Additional notes for successful testing)	☐	☐	☐	☐	☐	☐
Additional notes for successful testing: *#9 – Additional criterion to determine success/accuracy for this step*	☐Go ☐No Go		☐Go ☐No Go		☐Go ☐No Go	
Enter testing Scenario used						
Evaluator's Dated Initials:						
Course/School Chief dated Initials (required with 3rd attempt only)						

Continued on next page

1 of 2

IANCE TEST CHECKLIST

		Date:
	❑Fully Capable	❑Not Yet Capable
	❑PASS	❑REMEDIATE

_/_____ Student Signature/Date:_____/_____

		Date:
	❑Fully Capable	❑Not Yet Capable
Assessment Decision:	❑PASS	❑REMEDIATE

Evaluator Signature/Date:_____/_____ Student Signature/Date:_____/_____

		Date:
Test #3 Student Performance:	❑Fully Capable	❑Not Yet Capable
Feedback:		
Assessment Decision:	❑PASS	❑REFER

Course/School Chief Signature/Date:_____/_____ Student Signature/Date:_____/_____

End of PT Checklist.

2 of 2

JA – M.1: How to Develop Performance Tests, Continued

Introduction

This process involves input from analysis and design to pull together and develop a complete performance test package (including PT Checklist) for each TPO.

Steps

Follow these steps to develop your performance tests:

<table>
<tr><th colspan="2">Testing Parameters</th></tr>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>1</td><td>Review your design phase decisions (WS-J.2) to recall if any:
Testing parameters/constraints
Standards NOT being tested
Evaluation criteria upon which success will be measured</td></tr>
<tr><td>2</td><td>Review your Evaluation Criteria selection (WS-J.2) which determined whether to test the action as well as the output of the TPO (process and/or product).<table><tr><th>IF testing…</th><th>THEN</th></tr><tr><td>Process and Product</td><td>Go on to the next step</td></tr><tr><td>Product Only</td><td>Skip to Step 5 to create the PTC.</td></tr></table></td></tr>
<tr><td>3</td><td>Determine if you need to clarify the standards of the actions (as listed on WS-J.2) by doing the following:
Observe a performer who consistently produces the output to standards, noting her or his actions (the process).
Observe various performers and note what is acceptable and unacceptable in their performance.
Interview performers and supervisors and ask them to describe acceptable and unacceptable performance.
Consult a published description of the actions, noting the points that describe acceptable actions.</td></tr>
</table>

Continued on the next page

JA – M.1: How to Develop Performance Tests, Continued

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>4</td><td>Using your draft standards (evaluation criteria):
Circle any terms you think could be misinterpreted.
For each circled term, write the specific, observable actions and outputs that, if observed, would cause you to agree the standard covered by the term was achieved.
Test the edited term with the question, “If the student executed each of these actions and produced each of these outputs, would it be obvious to any observer that the student had met the standard?” When you can answer “yes,” the standard is finished.
Repeat the sub-steps above for each term that could be misinterpreted.</td></tr>
<tr><td colspan="2">Performance Test Checklist</td></tr>
<tr><td>5</td><td>Transfer the appropriate evaluation criteria from WS-J.2 onto the Performance Test Checklist.</td></tr>
<tr><td>6</td><td>Use the decision table below to determine the next step:<table><tr><th>IF testing the…</th><th>THEN</th></tr><tr><td>Product (output) of the TPO only</td><td>Skip to Step 8</td></tr><tr><td>Process and Product</td><td>Go on to the next step</td></tr></table></td></tr>
<tr><td>7</td><td>From the task analysis / task details (WS-F.1) list the steps (process) required for successful performance of the task
Phrase the steps so that each characteristic on the checklist is worded so that the output to standards results in a “Yes” being checked.
List and number in the order required to be performed (if specific order matters).
Phrase the actions as the testing official would observe it being performed by the students.
Insert the actions above the standards (if any) for that step.
Include any criteria / standard to which each step should be measured</td></tr>
<tr><td>8</td><td>Specify the standards to which the output (product) of the performance will be measured.</td></tr>
</table>

Continued on the next page

JA – M.1: How to Develop Performance Tests, Continued

NOTE: Your local procedures may supersede this guidance for writing directions for testing officials; if created locally, follow those procedures for how PTs should be scheduled, administered, and tracked at your unit.

These directions are often part of the Performance Test Booklet for instructors (*see example in Appendix O*).

Testing Directions	
Step	**Action**
9	Write specific directions to the testing officials making sure to include the: *who, what, when, where, why*, and *how*, as appropriate, of the performance test.
10	As appropriate, include the following categories of information: • Scheduling • Equipment and resources required for testing the performance • Assistance allowed for the student to use • Tools and references allowed for the student to use • Verbatim instructions to be read aloud by the testing official to the student, *or* to be read by the student upon receiving the test • Remedial procedures to assign to the student based on specific errors in performance (*see Chapter 5.4:Remediation Plans*)
Testing Scenarios	
11	Create at least three different scenarios for testing of each TPO.
12	Verify the technical accuracy of your scenario's with an AP/SME.
13	Create an answer key for each testing scenario.

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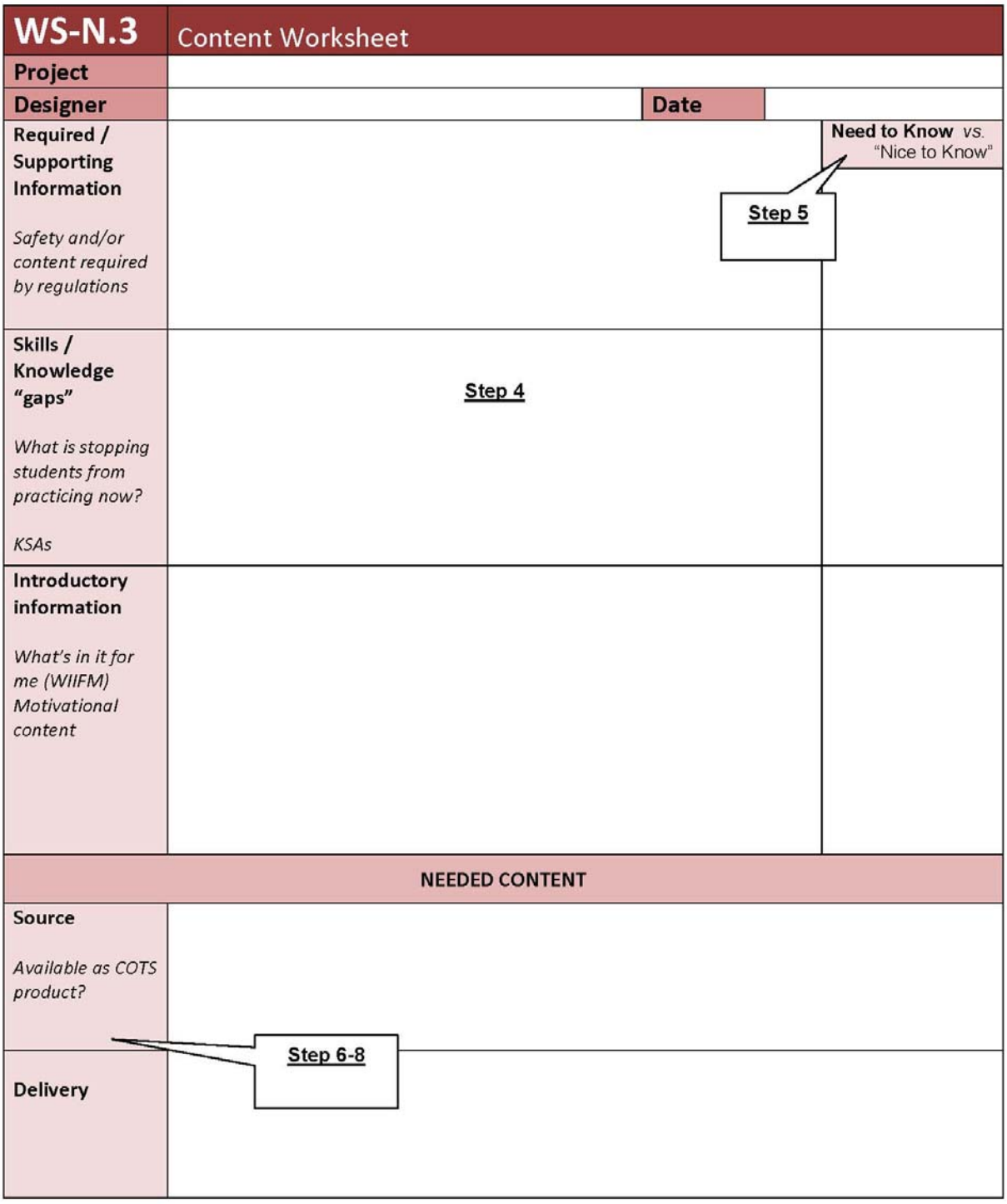
JA – M.2: How to Determine Necessary Content

Purpose	This is a job aid to help you determine what content is necessary to support the student's successful performance of particular task. This will also help determine if you can locate and repurpose existing content or commercial off-the-shelf (COTS) products, or if you need to develop an in-house student guide that contains that supporting content.
Who should use this JA	You should use this job aid if you are a course designer responsible for determining necessary content (Chapter 5.7) for a TPO. Ideally you are a graduate of the Coast Guard Course Designer Course (CDC) or the SABA Knowledge Service Peak Performance System workshops (previously known as Accomplishment-Based Curriculum Development (ABCD) workshops)
When you should use this JA	Use this job aid after the TPO has been written, the practices determined and developed, demonstrations developed, and the performance test written.
How to use this JA	Follow the steps as literally as is practical and in the sequence provided.

JA – M.2: How to Determine Necessary Content, Continued

Format

The below worksheet can be used while making decisions during your content analysis.



JA – M.2: How to Determine Necessary Content, Continued

Steps

Step 1: Review the objective.

Step 2: Review the test and relevant practice description & demonstration (if any).

Step 3: Review the skill hierarchy and target population description, noting what the students can already do. (see *WS-F.3 – Target Audience Profile.*)

Step 4: List the reasons why the student cannot immediately begin practicing the objective.

Step 5: Once this information has been reviewed, ask yourself the following questions concerning the information and content believed to be necessary before the student can begin practicing:

Ask	If	Then
Does the student need the information to accomplish the stated objective?	Yes	**Need to Know**
	No	Nice to Know
Is the information necessary to understand the main idea of the block of instruction?	Yes	**Need to Know**
	No	Nice to Know
Is the target audience (student) likely to already have this information?	Yes	Nice to Know
	No	**Need to Know**
Is there information missing that is necessary to getting the point of the objective across?	Yes	**Need to Know**
	No	Nice to Know
Is the information misplaced, i.e., would the information be more effective in support of another idea in a different block?	Yes	Nice to Know
	No	**Need to Know**

Continued on the next page

JA – M.2: How to Determine Necessary Content, Continued

Step 6: For all **Need to Know** answers, identify the appropriate source for delivery of this content:

Ask	If	Then
Is this information available in any Commercial Off the Shelf Products (some research may be required).	Yes	Recommend utilizing COTS products so as to not repurpose already existing content.
	No	Embed the necessary supporting content into your student materials for delivery of this PO.

Step 7: Identify content already available through repurposing COTS products (identify existing textbooks, online support, tech manuals, etc.).

Step 8: Determine the delivery system by selecting a delivery system that is economical and provide features that allow you to meet the objective.

***Note**: If you determine the need to conduct a more thorough content analysis, contact your ISD professional or supervisor for additional guidance.*

JA – M.3: How to Develop a Practice Exercise

Purpose	This is a job aid to help you develop your practice exercises (using the provided worksheet) to support the student's successful performance of particular task.
Who should use this JA	You should use this job aid if you are a course designer responsible for developing practice exercises (Chapter 5.6) for a TPO. Ideally you are a graduate of the Coast Guard Course Designer Course (CDC) or the SABA Knowledge Service Peak Performance System workshops (previously known as Accomplishment-Based Curriculum Development (ABCD) workshops)
When you should use this JA	Use this job aid after the TPO has been written, demonstration developed, and the performance test written.
How to use this JA	Follow the steps as literally as is practical and in the sequence provided.
Supporting Job Aid	Use this job aid with *Development Worksheet: Practice Exercises, WS-N2*.

JA – M.3: How to Develop a Practice Exercise, Continued

Format

WS-N.2	Practice Exercises Worksheet		
Project			
Designer		**Date**	
Performance	**Step 1**		
Tools and Materials *All materials required by the conditions* *Any materials needed specifically for the practice*	**Step 2**	**Feedback**	**Step 3**
Highest level of simulation (tested to on PT)	**Step 4**	**Level of simulation in practice** (any changed conditions, etc)	**Step 5**
Scenario / Additional Criteria	**Step 6**		

WS-N.2 Practice Exercises Worksheet

Page **1** of **1**

JA – M.3: How to Develop a Practice Exercise, Continued

Steps

Follow the steps, as shown below to assist in completion of the supporting worksheet: *WS – N.2*.

Step	Action
1	List the TPO as developed in the Design phase.
2	Transfer from the *Task Details: WS-F1* any tools needed for completion of the task (specified as conditions). Additionally, list any materials/tools necessary for this practice (in the training environment, for this particular level of simulation).
3	Following the guidance specified in Chapter 5.6 for development guidelines for feedback.
4	Obtain from the performance test, the conditions (level of simulation) under which this performance is being tested.
5	Transfer from the *Lesson Design Plan: WS-J3c*, the level of simulations. **Note**: For each level of simulation, complete a separate practice exercise worksheet listing each of those levels individually in this block.
6	For **Additional Criteria**: Include any directions that will assist in the administration of this practice exercise. For **Scenario**: Draft your scenario that will be presented to the student under which they will be completing this practice, at designated level of simulation.

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JA – M.4: How to Develop Instructor Guides

Purpose

This is a secondary job aid to help you access the primary, and more detailed, development job aid for building instructor guides.

The primary job aid document and reference guide *(IGTemplate_Reference Guide.pdf)* provides detailed instructions for how to download, install, set up, and use the required templates for development of instructor guides and other supplemental materials that may use Microsoft Word or the IG template structure (such as student guides).

The *IGTemplate Reference Guide.pdf* is included in the zip file located at the "Instructor Guide (Zipped files)" link on the following intranet web page:
http://www.uscg.mil/hq/cg1/TracenPetaluma/SOP/Templates.asp

Who should use this JA

You should use this job aid if you are a course designer responsible for developing instructor guides. Ideally you are a graduate of the Coast Guard Course Designer Course (CDC) or the SABA Knowledge Service Peak Performance System workshops (previously known as Accomplishment-Based Curriculum Development (ABCD) workshops).

When you should use this JA

Use this job aid when you using the *IG Template-2012.dot* in the development of your instructional materials (lesson plans and instructor guides), or using the features in the template in the development of other supporting manuals/documents.

How to use this JA

Follow the steps as literally as is practical and in the sequence provided.

Supporting Job Aid

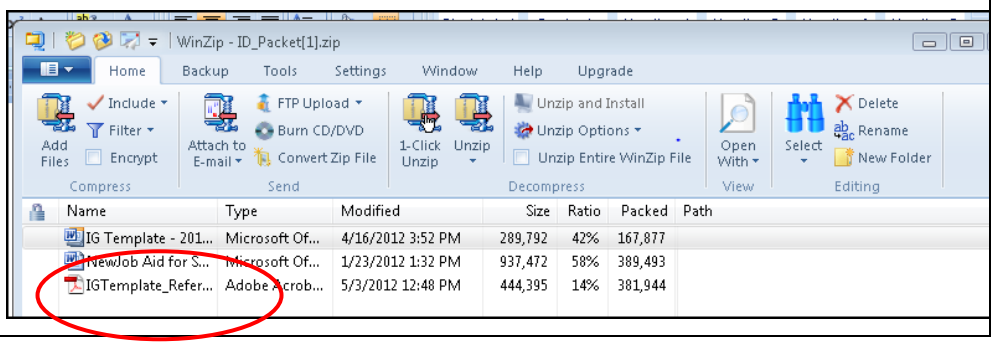
Use the primary development job aid (*IGTemplate_Reference Guide.pdf*) to develop instructor guides using the required templates, which are located at either of the following TRACEN Petaluma intranet web sites:

- http://www.uscg.mil/hq/cg1/TracenPetaluma/SOP/Templates.asp and click the "Instructors_Guide (Zipped)" link (full download of templates, directory structure, and development job aid – in zipped file)
- http://www.uscg.mil/hq/cg1/TracenPetaluma/SOP/Downloads/IG_JobAids.doc (direct link to development job aid *only*)

JA – M.4: How to Develop Instructor Guides, Continued

Steps

Follow the steps below to access and download the detailed Instructor Guide job aid, which you will use to develop instructor guides.

Step	Action
1	Click the following hyperlink to begin downloading the *IGTemplate_Reference Guide.pdf* (containing the job aid), found in the Zipped file then click **Save** on the dialog box. http://www.uscg.mil/hq/cg1/TracenPetaluma/SOP/Templates.asp 
2	Click **Open** to access the zipped file and retrieve the IG Job Aid (located in the *IGTemplate_ReferenceGuide.pdf.*
3	**Double-click** to open the *IGTemplate_ReferenceGuide.pdf* file and save or print (for access to all IG template job aids). 

JA – M.5: How to Review Course Materials

Purpose	This is a job aid to help the AP or SME that is conducting the technical accuracy review of your materials, provide you with the information and feedback that will be valuable to you – as the course developer – in making any updates or corrections to your materials.
Who should use this JA	Course designers should provide this job aid to the APs or SMEs identified to perform technical accuracy review of their instructional materials.
When you should use this JA	Use this job aid after a key deliverable or instructional materials have been developed, and before you are ready for developmental testing.
How to use this JA	Follow the steps as literally as is practical and in the sequence provided.

JA – M.5: How to Review Course Materials, Continued

Format

Use the *Course Material Review Worksheet: WS-N.4* to assist in capturing your observations and feedback:

WS-N.4	Course Material Review Worksheet		
Project			
Unit		**Date**	
Lesson			
Applicability	Use with Job Aid, JA-M.5: How to Evaluate Course Materials.		
Lesson content is:		**YES**	**NO**
a. Accurate		❑	❑
b. Up-to-date		❑	❑
c. Clearly presented		❑	❑
d. Focused on what the Student ***needs*** to know, be, or do		❑	❑
Lesson Content			
*Record your observations here. Comment specifically on **any** item checked **NO** above.*			
Lesson activities are:		**YES**	**NO**
a. Interesting and involving		❑	❑
b. Motivational			
c. Relevant			
d. Realistic			
e. Easy to understand			
f. Consistent with how the task is performed on the job			
g. Pitched at the student's level			
Lesson Activities			
*Record your observations here. Comment specifically on **any** it*			

WS-N.4	Course Material Review Worksheet		
Project			
Unit		**Date**	
Lesson			
Lesson Materials and Resources	Too Much	Too Little	About Right
a. Range of material covered	❑	❑	❑
b. Depth of material covered	❑	❑	❑
c. Level of detail presented	❑	❑	❑
Perceptions			
a. *What did you like **MOST** about the lesson?*			
b. *What did you like **LEAST** about the lesson?*			
Recommendations			
a. *If I could change **ONE** thing about this lesson, it would be…*			
b. *I think this change is important because…*			
Reviewed By:			

**Submit completed worksheet to Project Lead, supervisor for review.*

JA – M.5: How to Review Course Materials, Continued

Instructions for Reviewer

Your feedback, including confidential observations and recommendations, will help to improve the accuracy, relevance, value, and overall quality of course materials. The worksheet on the following pages is provided for this purpose.

Follow the steps in the table below and indicate your responses and written comments in the spaces provided in the worksheet (see also WS-N.4).

Steps

Step	Action
1	Obtain review references, tools, and materials.
2	Use the following table to determine whether **Lesson Content** will help the student to master lesson objectives:

Lesson content is:	**YES**	**NO**
a. Accurate	❑	❑
b. Up-to-date	❑	❑
c. Clearly presented	❑	❑
d. Focused on what the Student ***needs*** to know, be, or do	❑	❑

IF you checked…	**AND** have…	**THEN…**
EACH item **YES**	**NO** observations	*Go to Step 5*
ANY item(s) **YES**	Observations	*Go to Step 4*
NO for **ANY** item	>	*Go to Step 4*

1 Record your observations.

Lesson Content
*Record your observations here. Comment specifically on **any** item checked **NO** above.*

Continued on the next page

JA – M.5: How to Review Course Materials, Continued

Steps, Continued

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>4</td><td>Use the following table to determine whether Lesson Activities will help the student to master lesson objectives:
<table>
<tr><th>Lesson activities are:</th><th>YES</th><th>NO</th></tr>
<tr><td>a. Interesting and involving</td><td>❑</td><td>❑</td></tr>
<tr><td>b. Motivational</td><td>❑</td><td>❑</td></tr>
<tr><td>c. Relevant</td><td>❑</td><td>❑</td></tr>
<tr><td>d. Realistic</td><td>❑</td><td>❑</td></tr>
<tr><td>e. Easy to understand</td><td>❑</td><td>❑</td></tr>
<tr><td>f. Consistent with how the task is performed on the job</td><td>❑</td><td>❑</td></tr>
<tr><td>g. Pitched at the student’s level</td><td>❑</td><td>❑</td></tr>
</table>
<table>
<tr><th>IF you checked…</th><th>AND have…</th><th>THEN…</th></tr>
<tr><td>EACH item YES</td><td>NO observations</td><td>Go to Step 7</td></tr>
<tr><td>ANY item(s) YES</td><td>Observations</td><td>Go to Step 6</td></tr>
<tr><td>NO for ANY item</td><td>></td><td>Go to Step 6</td></tr>
</table>
</td></tr>
<tr><td>5</td><td>Record observations.
<table>
<tr><th>Lesson Activities</th></tr>
<tr><td>Record your observations here. Comment specifically on <u>any</u> item checked NO above.</td></tr>
</table>
</td></tr>
</table>

Continued on the next page

JA – M.5: How to Review Course Materials, Continued

Steps, Continued

Step	Action
6	Use the following table to determine whether **Lesson Materials and Resources** will help the student to master lesson objectives:

Lesson Materials and Resources	Too Much	Too Little	About Right
a. Range of material covered	❑	❑	❑
b. Depth of material covered	❑	❑	❑
c. Level of detail presented	❑	❑	❑

IF you rated…	**AND** you have…	**THEN…**
ALL items About Right	**NO** observations	*Go to Step 9*
ANY item About Right	Observations	*Go to Step 8*
ANY item Too Much **OR** Too Little	>	*Go to Step 8*

7	Record Perceptions *a. What did you like* **MOST** *about the lesson?* *b. What did you like* **LEAST** *about the lesson?*
8	Record Key Recommendations – complete statements (a) and (b) *a. If I could change* **ONE** *thing about this lesson, it would be…* *b. I think this change is important because…*

Continued on the next page

JA – M.5: How to Review Course Materials, Continued

Steps, Continued

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>9</td><td>Complete AP review and signoff.
<table>
<tr><td>Course:</td><td></td></tr>
<tr><td>Unit:</td><td></td></tr>
<tr><td>Lesson:</td><td></td></tr>
<tr><td>Material Reviewed:</td><td></td></tr>
<tr><td>AP Name/Signature:</td><td></td></tr>
<tr><td>Date Submitted:</td><td></td></tr>
</table></td></tr>
<tr><td>10</td><td>Submit completed worksheet to Project Lead, supervisor for review.</td></tr>
</table>

APPENDIX N

Worksheets/Templates for Development

Table of Contents

These worksheets and templates are designed to work in concert with *Chapter 5 Development* and the Development job aids presented in *Appendix M*.

The following have been provided to you for course development.

Worksheet Number	Title
WS-N.1	Performance Test Checklist (Pages 1 – 2)
WS-N.2	Development Worksheet – Practice Exercises
WS-N.3	Content Development Worksheet
WS-N.4	Course Material Review Worksheet
N/A	Instructor Guide Template The *IGTemplate Reference Guide.pdf* is included in the zip file located at the "Instructor Guide (Zipped files)" link on the following intranet web page, from which you will find directions on downloading the IG Template. http://www.uscg.mil/hq/cg1/TracenPetaluma/SOP/Templates.asp

Worksheet Access

Samples of the worksheets are included in this appendix. Refer to the *SOP Downloads (Word Version)* page on TRACEN Petaluma's internet website for the most recent and usable copies of all Worksheets and Templates:
http://www.uscg.mil/hq/cg1/TracenPetaluma/SOP/default.asp

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WS – N.1: Performance Test Checklist (Page 1)

PERFORMANCE TEST: <*TPO TITLE*>

Student Name: _____ Class #: _____

TPO (RPQ often referenced as well, not required)			
X.X - <*Insert TPO* >			
Student may use the following: *(Click on box to check)*	☐ Job Aid	☐ Reference Material	Other:
EVALUATION CRITERIA: *(Stated outcome of correct performance)*			
Accuracy: *(list criteria as applicable)*	**Safety:** *(list criteria as applicable)*		
Time: *(list criteria as applicable)*	**Rate of Production:** *(list criteria as applicable)*		

STEP	Attempt					
	1st		2nd		3rd	
	Y	N	Y	N	Y	N
1. List steps in order, and numbered if process is a factor	☐	☐	☐	☐	☐	☐
2. All standard font (present tense)	☐	☐	☐	☐	☐	☐
3. All standard font	☐	☐	☐	☐	☐	☐
4. All standard font	☐	☐	☐	☐	☐	☐
(Phase title - Insert this if you have a phase that allows use of a job aid/reference sheet)						
5. All standard font	☐	☐	☐	☐	☐	☐
6. All standard font	☐	☐	☐	☐	☐	☐
7. All standard font	☐	☐	☐	☐	☐	☐
8. Resulting output as well as process should be captured within PT Checklist (enter more explicit detailed information here about the EO criterion if needed under Additional notes for successful testing)	☐	☐	☐	☐	☐	☐
Additional notes for successful testing: *#9 – Additional criterion to determine success/accuracy for this step*	☐Go ☐No Go		☐Go ☐No Go		☐Go ☐No Go	
Enter testing Scenario used						
Evaluator's Dated Initials:						
Course/School Chief dated Initials (required with 3rd attempt only)						

Continued on next page

WS – N.1: Performance Test Checklist (Page 2)

PERFORMANCE TEST CHECKLIST

Assessment Record

		Date:
Test #1 Student Performance:	❑Fully Capable	❑Not Yet Capable
Feedback:		
Assessment Decision:	❑PASS	❑REMEDIATE

Evaluator Signature/Date:_____/_____ Student Signature/Date:_____/_____

		Date:
Test #2 Student Performance:	❑Fully Capable	❑Not Yet Capable
Feedback:		
Assessment Decision:	❑PASS	❑REMEDIATE

Evaluator Signature/Date:_____/_____ Student Signature/Date:_____/_____

		Date:
Test #3 Student Performance:	❑Fully Capable	❑Not Yet Capable
Feedback:		
Assessment Decision:	❑PASS	❑REFER

Course/School Chief Signature/Date:_____/_____ Student Signature/Date:_____/_____

End of PT Checklist.

2 of 2

WS – N.2: Development Worksheet-Practice Exercises

WS-N.2	Practice Exercises Worksheet		
Project			
Designer		**Date**	
Performance			
Tools and Materials *All materials required by the conditions* *Any materials needed specifically for the practice*		**Feedback**	
Highest Level of Simulation (tested to on PT)		**Level of Simulation in Practice** (any changed conditions, etc)	
Scenario / Additional Criteria			

WS-N.2 Practice Exercises Worksheet

Page **1** of **1**

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WS-N.3: Content Development Worksheet

WS-N.3	Content Worksheet		
Project			
Designer		**Date**	
Required / Supporting Information *Safety and/or content required by regulations*			**Need to Know** *vs.* "Nice to Know"
Skills / Knowledge "gaps" *What is stopping students from practicing now?* *KSAs*			
Introductory information *What's in it for me (WIIFM) Motivational content*			
NEEDED CONTENT			
Source *Available as COTS product?*			
Delivery			

WS-N.3 Content Worksheet

Page **1** of **1**

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WS-N.4: Course Material Review Worksheet

WS-N.4	Course Material Review Worksheet		
Project			
Unit		**Date**	
Lesson			
Applicability	Use with Job Aid, JA-M.5: How to Evaluate Course Materials.		

Lesson content is:	**YES**	**NO**
a. Accurate	❑	❑
b. Up-to-date	❑	❑
c. Clearly presented	❑	❑
d. Focused on what the Student ***needs*** to know, be, or do	❑	❑

Lesson Content

*Record your observations here. Comment specifically on **any** item checked **NO** above.*

Lesson activities are:	**YES**	**NO**
a. Interesting and involving	❑	❑
b. Motivational	❑	❑
c. Relevant	❑	❑
d. Realistic	❑	❑
e. Easy to understand	❑	❑
f. Consistent with how the task is performed on the job	❑	❑
g. Pitched at the student's level	❑	❑

Lesson Activities

*Record your observations here. Comment specifically on **any** item checked **NO** above.*

WS-N.4: Course Material Review Worksheet, Continued

WS-N.4	Course Material Review Worksheet		
Project			
Unit		**Date**	
Lesson			

Lesson Materials and Resources	Too Much	Too Little	About Right
a. Range of material covered	❑	❑	❑
b. Depth of material covered	❑	❑	❑
c. Level of detail presented	❑	❑	❑

Perceptions
a. What did you like **MOST** *about the lesson?*
b. What did you like **LEAST** *about the lesson?*

Recommendations
a. If I could change **ONE** *thing about this lesson, it would be…*
b. I think this change is important because…

Reviewed By:	

**Submit completed worksheet to Project Lead, supervisor for review.*

Instructor Guide Template – 2012

!!

U.S. Department of
Homeland Security

United States
Coast Guard

Instructor Guide

[Course Name]

Replace this with School Logo

[School Name]

MONTH YEAR

Instructor Guide Template – 2012, Continued

About This Course

Source

This course has been created based on the following key sources of information:

Source:	Provides:
Analysis or EPQ/RPQ *(i.e. OS RPQ, dated 02Feb2012)*	Performance Objectives (PO)
Curriculum Outline *dated, if known*	Additional information for course administration such as: • Max # students/course • Location • Delivery (resident / exportable) • Equipment / Resource needs • Instructor contact hours **See below for some of this information.*

Instructional Settings

This course will be delivered in various settings depending on the tools and equipment needed for each lesson. You need to check and reserve the settings in advance. Developer Note: Edit the following example text as applicable for your course.

This course is delivered as a resident course as well as road-show exported to the following locations: xxx, yyy, zzz.

Class Size

students are the maximum for this class.

Location

This course is delivered at [location / unit]. Also note whether it is exportable (e.g. delivered as a road show, etc).

Developer Note: Ensure that if you replace this paragraph, you do not inadvertently delete the associated block label. If this happens, use the Block Label button on the **Add-Ins** tab to replace and rename it to the correct block label heading. ***This applies to all block headings in this template.***

Instructor Guide Template – 2012, Continued

About This Course, Continued

Course Length

This course requires # training days. The approximate allocation of times is listed at the beginning of each unit or lesson.

Security Classification

Developer Note: Describe any security classifications/requirements associated with this course; for example, Security clearance required.

Instructor Guide Template – 2012, Continued

TABLE OF CONTENTS

Instructor Guide Template – 2012, Continued

COURSE OVERVIEW

Introduction

Overview

This Instructor Guide is designed for you, the instructor(s), [add text here to give basic overview of the course].

Course Contents

This course consists of the following units:

- Unit 1. [Enter text here].
- Unit 2. [Enter text here].
- Unit 3. [Enter text here].

Performance Evaluations

You will evaluate students on the performance of each task delivered throughout this course. How that performance test will be scheduled, administered, and evaluated is detailed within each lesson and/or in the Performance Test Checklist (PTC) booklet.

Safety

Developer Note: Describe any safety concerns associated with this course and/or specify that it will be detailed as necessary within each of the lessons.

Applicability: The safety precautions contained in this course are applicable to all personnel. They are basic and general in nature.

Personnel who operate or maintain equipment during the training must be thoroughly familiar with all aspects of personnel safety, and strictly adhere to every general as well as specific safety precautions contained in operating and emergency procedures, and in applicable governing directives.

Situational Awareness

You are responsible for maintaining situational awareness and shall remain alert to signs of student panic, fear, extreme fatigue, or exhaustion, or lack of confidence that may impair safe completion of the training session, and shall immediately stop the training, identify the problem, and make a determination to continue or discontinue the training. Developer Note: You may wish to include a statement addressing ORM and how you assess risk during training.

Instructor Guide Template – 2012, Continued

Course Map

Illustration

The image below illustrates a high-level grouping and sequencing for this course:

Developer Note: This can be used for any pictorial representation that gives the big picture of the course lay-out or content. If there is none, delete this page.

Instructor Guide Template – 2012, Continued

UNIT 1. [NAME]

Introduction

Overview

Developer note: Give a brief overview of what this unit includes. This unit consists of the following lessons, which are further described below:

- Lesson 1. [Lesson Name]
- Lesson 2. [Lesson Name]
- Lesson 3. [Lesson Name]

Lesson 1. [Lesson Name]

Upon successful completion of this lesson, the students will be able to do the following: Developer Note: If this is a preview lesson, then reword to reflect that and remove reference/bullets to any tasks/POs.

- 1a. [Task or Topic Name 1]
- 1b. [Task or Topic Name 1]
- 1c. [Task or Topic Name 1]

Lesson 2. [Lesson Name]

Upon successful completion of this lesson, the students will be able to do the following: Developer Note: If this is a preview lesson, then reword to reflect that and remove reference/bullets to any tasks/POs.

- 2a. [Task or Topic Name 1]
- 2b. [Task or Topic Name 1]
- 2c. [Task or Topic Name 1]

Lesson 3. [Lesson Name]

Upon successful completion of this lesson, the students will be able to do the following: Developer Note: If this is a preview lesson, then reword to reflect that and remove reference/bullets to any tasks/POs.

- 3a. [Task or Topic Name 1]
- 3b. [Task or Topic Name 1]
- 3c. [Task or Topic Name 1]

Instructor Guide Template – 2012, Continued

Introduction, Continued

Unit Map

The image below illustrates a high-level grouping and sequencing for this unit:

Developer Note: This section can be used for any pictorial representation that gives the big picture of the unit lay-out or content. If there is none, delete this page.

Instructor Guide Template – 2012, Continued

Lesson 1. [Name]

Introduction

Overview

Developer Note: This should provide a general overview of the lesson, to include a list of the main tasks or topics to be covered which aligns with map titles in this section.

- 1a. [Task or Topic Name 1]
- 1b. [Task or Topic Name 2]

Objective

In this lesson you will cover the following:

Performance Objective(s)

References

The following are references for this lesson when the detail information is desired:

- [Enter text here].
- [Enter text here].
- [Enter text here].

Instructional Settings

The lesson will be delivered in the following settings:

- [Enter text here].
- [Enter text here].
- [Enter text here].

Materials

You need the following materials to support delivery of this lesson:

- [Enter text here].
- [Enter text here].
- [Enter text here].

Instructor Guide Template – 2012, Continued

Unit 1. [Name] Lesson 1. [Name]

Introduction, Continued

Time and Staffing Delivery Requirements

The following are suggested times and staffing requirements for the various activities of this lesson. Minor adjustments are allowable.

Activity	Time Estimate	I:S Ratio	Description / Notes
Lecture (Content)			If any supporting PPT, include name/location of that here.
Demonstration			
Practice #1			If any unique staffing requirements, include explanation here.
etc			
Performance Test			
Total training time:			

[Course Name] 4 [School Name]

Instructor Guide Template – 2012, Continued

Unit 1. [Name] Lesson 1. [Name]

Content Overview

Introduction	Developer Note: This block section should include a general overview of the content to be delivered in support of the POs listed previously, as well as tie in recall of any prerequisite information.
Opening Activity	Developer Note: this should provide a general overview of the lesson, as well as any gaining attention activities.
Lecture (Content)	Enter necessary text which supports delivery of a presentation / lecture or preview content to support a specific task/topic delivery that follows.

[Course Name] 5 [School Name]

Instructor Guide Template – 2012, Continued

Unit 1. [Name] Lesson 1. [Name]

1a. [Task or Topic Name 1]

Overview

Developer Note: This should include a general overview of the content to be delivered in support of this particular task or topic.

Preparation Checklist

Developer Note: Instructional actions to prepare for delivery of the lesson, including:

- [Enter text here].
- [Enter text here].

Job Aid

You need the following job aid that supports the performance and delivery of this task:

Job Aid Name / location– delete this section if there is no job aid.

[Course Name] [School Name] 6

Instructor Guide Template – 2012, Continued

1a. [Task or Topic Name 1], Continued

Demonstration

Developer Note: Provide the procedures instructors should follow in conducting the demonstration, what the students should do, any supporting lecture or content delivered during the demonstration, etc. If there is no demonstration, delete this page.

Instructor Guide Template – 2012, Continued

Practice

Preparation

Developer Note: Provide description of what preparations the instructor must do to prepare for administration of practice exercises.

Administration

Follow the steps below to administer the practice:

1. [Enter instructions here].
2. [Enter instructions here].
3. Example 1: Answer any questions as needed.
4. Example 2: Emphasize the time limit for the practice.
5. Use the checklist (in the Performance Test Checklist (PTC) booklet) to evaluate the student against the standards to which they will be expected to perform to during the final assessment.
6. Evaluate and give feedback to the students as outlined below.

Evaluation Process

Follow the instruction below to evaluate the practice:

1. Inform the student of the practice result:

IF	THEN
Go	Inform the student they are ready to proceed to the Performance Test.
No Go	Give feedback: 1) Review the practice with the student. 2) Explain the discrepancies. 3) Answer any questions. 4) Administer another practice until the student succeeds in practice.

2. Return the PTC booklet to the student.

Instructor Guide Template – 2012, Continued

1b. [Task or Topic Name 2]

Overview

Developer Note: This should include a general overview of the content to be delivered in support of this particular task or topic.

Preparation Checklist

Instructional actions to prepare for delivery of the lesson, including:

- [Enter text here].
- [Enter text here].

Job Aid

You need the following job aid that supports the performance and delivery of this task:

Job Aid Name / location– delete this section if there is no job aid.

Instructor Guide Template – 2012, Continued

1b. [Task or Topic Name 2], Continued

Demonstration

Developer Note: Provide details on how the instructors should carry out the demonstration, what the students should do, any supporting lecture or content delivered during the demonstration, etc. If there is no demonstration, delete this page.

Instructor Guide Template – 2012, Continued

Unit 1. [Name] Lesson 1. [Name]

Practice

Preparation

Developer Note: Provide description of what preparations the instructor must do to prepare for administration of practice exercises.

Administration

Follow the steps below to administer the practice:

1. [Enter instructions here].
2. [Enter instructions here].
3. Example 1: Answer any questions as needed.
4. Example 2: Emphasize the time limit for the practice.
5. Use the checklist (in the Performance Test Checklist (PTC) booklet) to evaluate the student against the standards to which they will be expected to perform to during the final assessment.
6. Evaluate and give feedback to the students as outlined below.

[Course Name] [School Name]

11

Instructor Guide Template – 2012, Continued

Practice, Continued

Evaluation Process

Follow the instruction below to evaluate the practice:

1. Inform the student of the practice result:

IF	THEN
Go	Inform the student they are ready to proceed to the Performance Test.
No Go	Give feedback: 1) Review the practice with the student. 2) Explain the discrepancies. 3) Answer any questions. 4) Administer another practice until the student succeeds in practice.

2. Return the PTC booklet to the student.

Lesson Review

Developer Note: You may choose to include a lesson review before any assessment is administered, especially if the lesson/task is complex. If there is none, delete this section.

Instructor Guide Template – 2012, Continued

Unit 1. [Name] Lesson 1. [Name]

Assessment

Preparation

Follow the instruction below to prepare for the performance test:

1. Prepare the performance test scenarios for each student.
2. Remind students to bring their Performance Test Checklist (PTC) booklet to the assessment.
3. Review instructions for administration found in the PTC booklet (Instructor version). Developer Note: The instructions for administering the performance test in the PTC booklet should not be duplicated in the IG, unless the design decision for the course calls for all instructor materials to be packaged in one booklet.
4. [Enter text here].

Administration

Developer Note: These directions should be in the PTC booklet for administration of every performance test. If specific guidance for this performance test is necessary, expand on that here. Otherwise, delete this section.

Evaluation Process

Follow the instructions below to evaluate the performance test:

1. Use the PTC booklet to evaluate the student's performance.
2. Inform the student of the test result:

IF	THEN
Go	Sign and date for successful completion of the task on the Course Sign-Off Sheet.
No Go	1) Review the test with the student. 2) Explain the discrepancies. 3) Schedule remediation, as necessary. 4) Schedule the next attempt at PT. ***Note***: *If the third attempt is necessary, you must inform the School Chief.*

3. Return the PTC booklet to the student.
4. Enter the results into the SKILLS database.

[Course Name] 13 [School Name]

Instructor Guide Template – 2012, Continued

Unit 1. [Name] Lesson 1. [Name]

Summary and Review

Review

Developer Note: A summary and review section ***is required*** and can be used after a lesson, series of lessons or a whole unit for the purpose of enhancing retention and transfer before moving on to next block of instruction. Edit the content provided below as necessary and appropriate for your review.

Review with students, topics discussed and provide opportunity to complete any exercises to enhance retention and transfer of the skills/knowledge just learned, to apply to follow-on lessons.

- [Topic 1]
- [Topic 2]
- [Topic 3]

Group Discussion (Q&A)

Allow students adequate time to discuss all the issues in this lesson. It may be helpful for instructors to capture these commonly asked questions / answers below for future lesson delivery or course updates.

Questions	Answers

Assignment

Instruct the students to complete the following assignments as review from this lesson and/or preparation for next lessons. Indicate when students should submit the assignments:

- [Enter text here].

[Course Name] 14 [School Name]

Instructor Guide Template – 2012, Continued

APPENDICES

Appendix A. [Name]

Instructor Guide Template – 2012, Continued

Appendix B. [Name]

Instructor Guide Template – 2012, Continued

USCG Training Center Petaluma

[School Name]

[Address Line 1]

[Address Line 2]

POC: [Enter text.]

(000) 000-0000

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APPENDIX O

Additional Examples for Development Phase

Introduction

This appendix presents some additional examples based on the job aids presented in *Appendix M* and the suggested worksheets and templates presented in *Appendix N*.

The examples are presented in their entirety and serve only as a reference for you. The actual materials you develop may vary slightly from those presented in this appendix, depending on the course development requirements.

Table of Contents

The following items are included in this appendix:

Example Instructor Guides, using the IG Template provided with SOP, Volume 5, can be viewed online under *Appendix O* on one of the below websites:

Tracen Internet Webpage:
http://www.uscg.mil/hq/cg1/TracenPetaluma/SOP/SOP.asp

Tracen Intranet Webpage:
http://cgweb.tcpet.uscg.mil/T_Div/CDT/SOP.asp

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EX – O.1.A: Performance Test (Checklist)

Introduction

This sample depicts an HS School performance test checklist. This checklist is intended to be used in concert with a supporting performance test package with scenario for complete testing, scoring and administration of this assessment (as shown in *EX – O.1.B*).

Performance Test: TPO 1.1 – Perform QA on Health Record

Name: _____ Class #: _____

TPO 1.1(EPQ 4.C.01)			
Given a health record and medical forms, **MAINTAIN** the health record without error IAW with the references listed below: Reference(s): *Medical Manual*, COMDTINST M6000.1D (series)			
Student may use the following:	**x** Job Aid	**x** Reference Material	Other:
Evaluation Criteria:			
Accuracy: • Verbalize visual findings and "considerations" not otherwise known to the instructor if applicable to the task	**Safety:** • Performer must demonstrate observance and adherence to safety precautions in using appropriate tools and procedures		**Time:** • Task completed within 20 minutes

STEP	Attempt 1st Y	1st N	2nd Y	2nd N	3rd Y	3rd N
1. Check all required items in Health Record.	☐	☐	☐	☐	☐	☐
2. Ensure all entries legible and in black or dark blue ink; correct if not.	☐	☐	☐	☐	☐	☐
3. Ensure all patient ID information typed, printed or stamped; correct if not.	☐	☐	☐	☐	☐	☐
4. Ensure all dates entered in yy/mm/dd format; correct if not.	☐	☐	☐	☐	☐	☐
5. Ensure all forms inserted in the correct section of the record and in chronological order; correct if not.	☐	☐	☐	☐	☐	☐
6. Ensure all forms filed by date with most recent on top; correct if not.	☐	☐	☐	☐	☐	☐
7. Determine if any forms missing; state need to contact lab or referral office to determine status of forms.	☐	☐	☐	☐	☐	☐
8. Ensure that all entries have required signatures; if not, state need to obtain signature, stamp or type name and rank of medical personnel.	☐	☐	☐	☐	☐	☐
Additional notes for successful testing:	☐Go ☐No Go		☐Go ☐No Go		☐Go ☐No Go	
Enter testing Scenario used						
Evaluator's Dated Initials:						
Course/School Chief dated Initials (required with 3rd attempt only)						

Continued on next page

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EX – O.1.B: Performance Test (Complete)

Introduction

This sample is more inclusive than many PT booklets, but you need to determine the scope of your efforts. This included much detail because at the time an update to the Instructor Guides was not being conducted, so all information for the instructor with administration and scoring was placed in the PT booklet.

Unit 1: OS Fundamentals Rev 01/14/2011

U.S. Department of Homeland Security

United States Coast Guard

OPERATIONS SPECIALIST CLASS "A" SCHOOL TPO PERFORMANCE TESTS

U.S. Coast Guard
Performance Test Booklet
Unit 1: OS Fundamentals
October 2010

Coast Guard Training Center Petaluma

EX – O.1.B: Performance Test (Complete), Continued

Description

These pages provide an example of assessment strategy for performance tests. Local procedures may be different, but they should be specified within your PT booklet or Instructor Guide in some fashion, such as shown in this example.

UNIT 1: PERFORMANCE TESTS

Assessment Instructions

Purpose of Assessment

Performance Tests are designed to assess Student capability to perform tasks according to Coast Guard standards.

Assessment Strategy

Given good instruction and sufficient time for practice, we believe most Students can master job tasks at a *fully successful* level of performance. During progressively challenging practice and assessment activities, Students have opportunities to demonstrate that they can meet Coast Guard performance standards under simulated operational conditions.

Assessment Tools

This booklet contains a *Performance Test Checklist* (PTC) for each of the following terminal performance objectives within this unit of instruction:

1.1: **RESPOND** to simulated electrical shock emergency

1.2: **EXTINGUISH** simulated Class "C" fire

1.3: **CONTROL** visitor access within a restricted area

1.4: **MAINTAIN** custody of accountable material

1.5: **MAINTAIN** standard communication log

1.6: **MAINTAIN** custody of COMSEC material

1.7: **DESTROY** accountable material

1.8: **PREPARE** formatted messages

1.9: **PREPARE** classified material for transmission

1.10: **APPLY** classification markings to classified material

1.11: **PROCESS** classified material

Each PTC includes process and product evaluation standards for each TPO, an *Assessment Record* for documenting Student learning performance

The *Student Achievement Summary* is used to certify Student mastery of all performance qualification requirements in this unit of instruction.

The *Assessment Map* illustrates a process for assessing Student learning performance.

EX – O.1.B: Performance Test (Complete), Continued

Unit 1: OS Fundamentals Rev 01/14/2011

Assessment Instructions, continued

Assessment Requirements

As illustrated in the *Assessment Map,* three successful assessments are required to certify mastery of the TPO.

You may use practice activities as part of your assessment of Student performance **IF** the practice conditions are the same as those stated in the TPO performance test **AND** you base your assessment decision on the TPO standards specified in the *Performance Test Checklist* (PTC).

Typically, you certify Student mastery of the TPO upon observation of *fully successful* performance during **TWO** practice activities that cover the range of testable performance conditions and **ONE** performance test.

How to Prepare for Assessment

Step	Action
1	Verify Student completion of **ALL** lesson assignments **AND** practice activities for this TPO
2	Inform Student of the time and place of assessment
3	Provide Student with TPO performance standards
4	Ensure Student access to performance support resources
5	Provide assessment briefing
6	Set up assessment site

Continued next page

1-2

EX – O.1.B: Performance Test (Complete), Continued

Assessment Instructions, continued

How to Brief the Student

Just before the final practice or assessment, read the following instructions to the Student:

You're ready for your performance check. This check will assess your capability to perform this task under simulated conditions. You will perform this task as you've done during practice exercises. During the scenario, I will role-play your supervisor. Other Instructors may assume roles according to the scenario.

Upon requirement to complete this task, you will be required to perform key actions to produce certain products of work or decisions according to Coast Guard performance standards in the Performance Test Checklist (PTC). *You have been provided with a copy of these standards.*

Apart from assistance you might reasonably expect in the actual work environment, you must actually perform the task by yourself. For example, since I'm acting as your supervisor during this test, you may, within reasonable limits, ask me for task guidance or clarification. You will have access to the equipment, tools, and performance support resources specified in the TPO, including job aid and/or procedural references.

Here's how I'll assess your performance. First, I'll compare your work to the "go" **OR** *"no-go" criteria contained in the* PTC. *Second, after I've completed my assessment, I'll inform you of my decision. Third, I'll give you feedback on your performance.*

For a successful performance check, you must complete each item on the PTC *in a way that meets or exceeds the required standard. Your level of performance must be sufficient to support a "fully capable" assessment. This means you have demonstrated that you can perform the task according to Coast Guard standards. Your achievement will be documented in your PDR and EPQ records.*

If **ANY** PTC *item is marked as a "no-go", I must assess your performance as "not yet capable" of accomplishing this task. Should this be the case, I'll explain my decision. I'll also tell you what you must do to meet required standards. We will then arrange for extra practice and reassessment as required.*

This concludes the assessment briefing. What questions do you have for me?

An assessment process is presented on the next page

EX – O.1.B: Performance Test (Complete), Continued

Assessment Instructions, continued

How to Assess *A standard assessment process is presented below:*

Step	Action
1	Observe the Student's performance
2	Compare the Student's performance with the actions and standards listed in the *Performance Test Checklist* (PTC)
3	Determine if the Student has completed each key action to the specified standard
4	According to your professional judgment, mark each assessment item to reflect your objective assessment of the Student's performance against specified performance criteria
5	Referring to the decision table below, make assessment decision

IF you checked	AND Student's overall performance is	THEN assess Student as
YES for EVERY item	GO after practices AND first assessment	FULLY CAPABLE *Go to Step 6*
	OR	
	GO after extra practices AND second assessment	
NO for ANY item	NO-GO after practices AND first assessment	NOT YET CAPABLE *Go to Step 10*
	OR	
	NO-GO after extra practices AND second assessment	
NO for ANY item	NO-GO after third OR final assessment	NOT YET CAPABLE *Go to referral procedure*

6	Debrief the Student
7	Document assessment decision
8	Obtain Student acknowledgement of assessment decision
9	Sign and date the *Performance Test Checklist* (PTC)
10	Initial and date the *Student Achievement Summary*

End of assessment process. A remediation process is presented on the following page.

EX – O.1.B: Performance Test (Complete), Continued

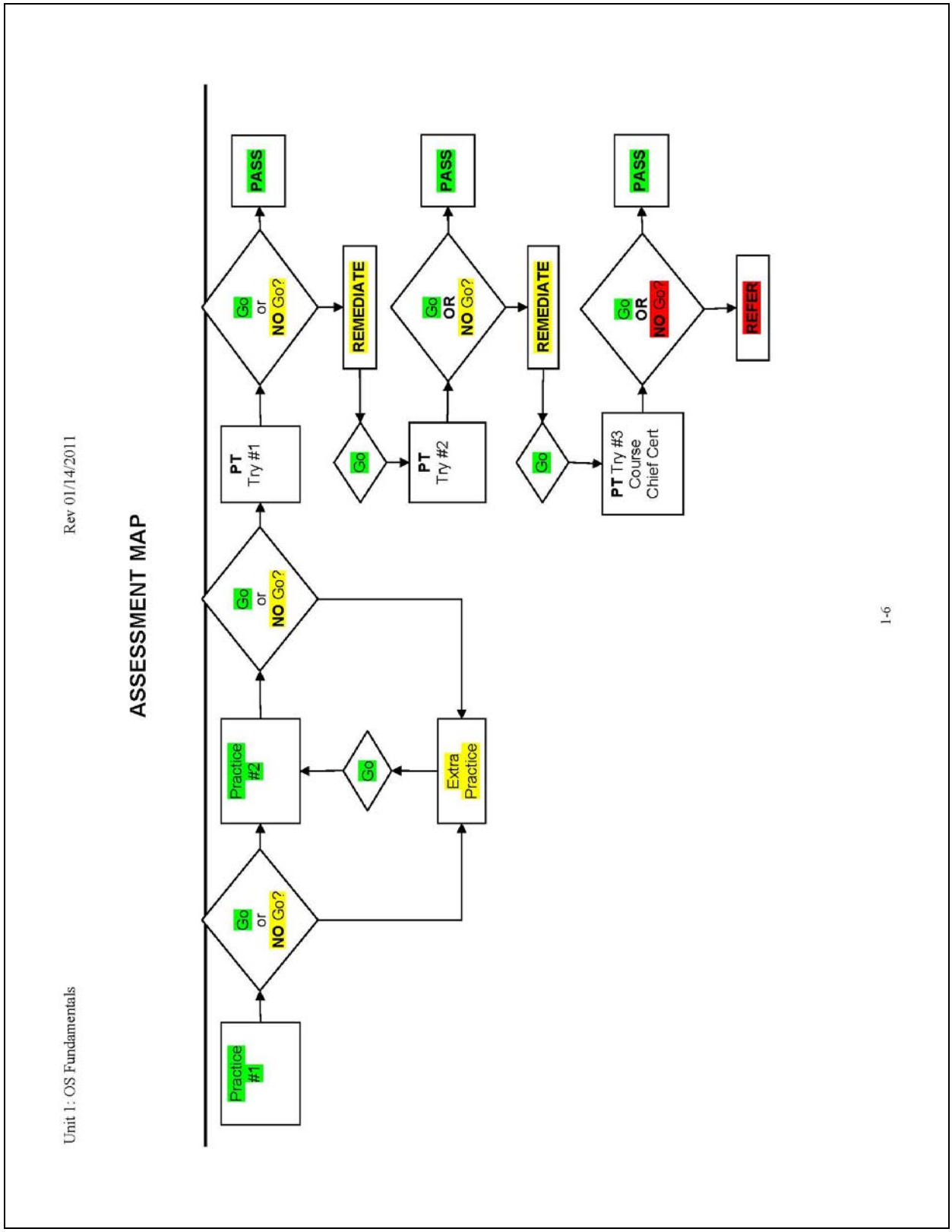
Assessment Instructions, continued

How to Remediate *For each item checked* **NO** *during the assessment:*

Step	Action
11	Explain "not yet capable" assessment decision to the Student
12	Contrast Student performance with the required standard
13	Reinforce what the Student did well
14	Refer the Student to the relevant reference or procedure
15	Tell the Student what s/he must do to demonstrate "fully capable" performance
16	Document assessment decision
17	Obtain Student acknowledgement of assessment decision
18	Sign and date the *Performance Test Checklist* (PTC)
19	Arrange for extra practice, study, or coaching as required
20	When remediation is completed, schedule the next Performance Test
21	Repeat the process according to the *Assessment Map* until the Student either demonstrates "fully capable" performance **OR** requires referral for further assessment
NOTE	**IF** remediation **OR** referral is required, **THEN** the school chief **OR** designated deputy **MUST** certify any subsequent assessment decision

End of remediation process.

EX – O.1.B: Performance Test (Complete), Continued



EX – O.1.B: Performance Test (Complete), Continued

Description The next few pages provide the details for this particular task.

TPO PERFORMANCE TESTS

1.1: Respond to an Electrical Shock Emergency

Performance **RESPOND** to an electrical shock emergency

Conditions This task is performed in command, control, and communications spaces ashore or afloat, under the conditions presented below.

Table of Specifications (Conditions)	
Safety	• Electronic safety precautions in lesson references must be observed
Security	• Security measures and procedures in lesson references must be observed
Environment	• Task is infrequently performed • Task is performed under abnormal or emergency conditions due to equipment damage or fault caused by a variety of factors • Task may involve stress • Visibility may be limited due to workplace or environmental conditions
Equipment	• Electronic equipment as source of shock (simulated)
Tools	• Standard response kit • Nonconductive instrument
Performance Support	• Assistance that is normally available to workplace performers shall be provided to the Student. Access to procedures or job aids shall also be provided. • Within reasonable limits, Students may seek task clarification or directions from the Instructor. • Students must perform the task to produce specified outputs without additional assistance.

Continued next page

EX – O.1.B: Performance Test (Complete), Continued

TPO PERFORMANCE TESTS

1.1: Respond to an Electrical Shock Emergency

Standards

The key actions **AND** outputs of this task shall be assessed against standard performance criteria contained in the *Performance Test Checklist* (PTC) for this TPO. These include:

Table of Specifications (Standards)	
Completeness	• Victim completely removed from source
Accuracy (Without error)	• Power correctly secured • Victim removed using nonconductive instrument • Victim placed in correct recovery position • No injury to self or others • Appropriate notification to command and/or supervisor
Time	• Action is taken immediately

Key Results

Accurate assessment of situation and victim condition, in conformance with procedures and standards specified in the *Performance Test Checklist* (PTC) for this TPO.

Without harm to self or others, victim is free from source of shock and in recovery position, in conformance with procedures and standards specified in the *Performance Test Checklist* (PTC) for this TPO.

References

1. US Coast Guard Electronics Manual, COMDTINST M10550.25 (series)
2. US Navy Occupational Safety and Health Manual, OPNAVINST 5100.19 (series)

PT Checklist (PTC)

Use the *Performance Test Checklist* (PTC) on the following pages to (1) assess key performance actions and outputs against job performance standards and (2) record Student performance achievements.

Continued next page

EX – O.1.B: Performance Test (Complete), Continued

Unit 1: OS Fundamentals Rev 01/14/2011

PERFORMANCE TEST CHECKLIST (PTC)

Name: _____ Class #: _____

TPO 1.1			
Respond to an Electrical Shock emergency			
Student may use the following:	☐ Job Aid	☐ Reference Material	Other:

EVALUATION CRITERIA:

Accuracy:	**Completeness:**	**Time:**
• Power correctly secured • Victim removed using nonconductive instrument • Victim placed in correct recovery position • No injury to self or others • Appropriate notification to command and/or supervisor	Victim completely removed from source	Action is taken immediately

STEP	**Attempt**					
	1st		2nd		3rd	
	Y	N	Y	N	Y	N
Process Evaluation						
1. Secure Power	☐	☐	☐	☐	☐	☐
2. Obtain help	☐	☐	☐	☐	☐	☐
3. Remove victim from source ✓ Victim completely removed from source with nonconductive instrument ✓ Action taken immediately ✓ No injury to self or others	☐	☐	☐	☐	☐	☐
4. Assess condition of victim	☐	☐	☐	☐	☐	☐
5. Brief responders	☐	☐	☐	☐	☐	☐
6. Make notifications	☐	☐	☐	☐	☐	☐
Product Evaluation						
1. Victim free of source ✓ Victim completely free, in correct recovery position	☐	☐	☐	☐	☐	☐
2. Response decisions: ✓ Accurate and immediate assessment of situation ✓ Accurate and immediate assessment of victim condition ✓ Correct decision – safe to assist without causing harm to self or others	☐	☐	☐	☐	☐	☐
3. Reports: ✓ Accurate and timely reports to command and/or supervisor	☐	☐	☐	☐	☐	☐
Additional notes for successful testing:	☐Go ☐No Go		☐Go ☐No Go		☐Go ☐No Go	
Enter testing Scenario used						
Evaluator's Dated Initials:						
Course/School Chief dated Initials (required with 3rd attempt only)						

End of PT Checklist. To record Student progress, go to the Assessment Record on the following page.

1-9

EX – O.1.B: Performance Test (Complete), Continued

Unit 1: OS Fundamentals Rev 01/14/2011

PERFORMANCE TEST CHECKLIST (PTC)

Assessment Record

TPO 1.1: How to Respond to an Electrical Shock Emergency		Date:
Test #1 Student Performance:	❑Fully Capable	❑Not Yet Capable
Feedback:		
Assessment Decision:	❑PASS	❑REMEDIATE

Instructor Signature/Date:_____/_____ Student Signature/Date:_____/_____

TPO 1.1: How to Respond to an Electrical Shock Emergency		Date:
Test #2 Student Performance:	❑Fully Capable	❑Not Yet Capable
Feedback:		
Assessment Decision:	❑PASS-TAKE TEST #3	❑REMEDIATE

Instructor Signature/Date:_____/_____ Student Signature/Date:_____/_____

TPO 1.1: How to Respond to an Electrical Shock Emergency		Date:
Test #3 Student Performance:	❑Fully Capable	❑Not Yet Capable
Feedback:		
Assessment Decision:	❑PASS	❑REFER

School Chief Signature/Date:_____/_____ Student Signature/Date:_____/_____

End of PT Checklist. To record Student achievement, go to the Student Achievement Summary.

1-10

EX – O.1.B: Performance Test (Complete), Continued

Description This page shows a summary of student achievement that the school uses to keep record of student performance (kept on file for one year), captured by Unit.

Unit 1: OS Fundamentals Rev 01/14/2011

STUDENT ACHIEVEMENT SUMMARY
PERFORMANCE QUALIFICATION STANDARDS (PQS)

Unit 1: OS Fundamentals

Student:		Class #:	
TPO	**TASK**	**ASSESSOR'S INTITALS**	**DATE**
1.1	**RESPOND** to simulated electrical shock emergency		
1.2	**EXTINGUISH** simulated Class "C" fire		
1.3	**CONTROL** visitor access within a restricted area		
1.4	**MAINTAIN** custody of accountable material		
1.5	**MAINTAIN** standard radio log		
1.6	**MAINTAIN** custody of COMSEC material		
1.7	**DESTROY** accountable material		
1.8	**PREPARE** formatted messages		
1.9	**PREPARE** classified material for transmission		
1.10	**APPLY** classification markings to classified material		
1.11	**PROCESS** classified material		

As certified by the signatures below, this Student has demonstrated his or her capability to satisfactorily perform the tasks listed above, under normal supervision and other conditions simulating those that he or she can expect to encounter in the actual job environment.

NAME	SIGNATURE	TITLE	DATE
		Assessor	
		Lead Instructor	
		School Chief	

1-11

EX – O.2: Job Aid (ET School)

Introduction

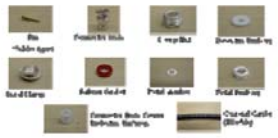
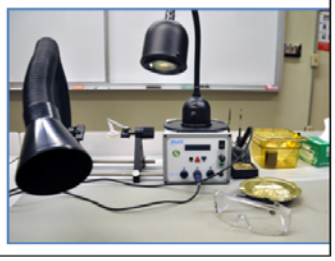
This sample from ET School is a Step-Action (or Cookbook-type) job aid. The order of events is important, designated by the sequence or numbering of each step, and a critical part of each step emphasized through the use of an image.

ET-A School Soldering

Job Aid:
HOW to Install A BNC coaxial cable connectors using soldering

The following components make up the contents of the BNC Solder Kit:

Follow the steps below to perform this task:

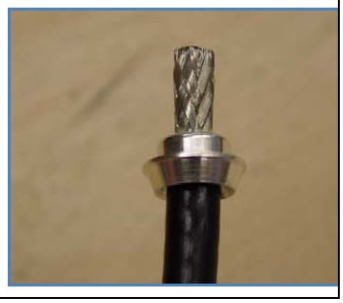
Step	Action	Illustration
1	Inventory the BNC connector kit for the following: • pin • connector body • clamp nut • dielectric bushing • braid clamp • rubber gasket • metal washer • metal bushing • connector body center dielectric bushing	
2	Don safety glasses, and prepare the work area.	

Continued on next page

EX – O.2: Job Aid (ET School), Continued

ET-A School Soldering

HOW to Install A BNC coaxial cable connectors using soldering, continued

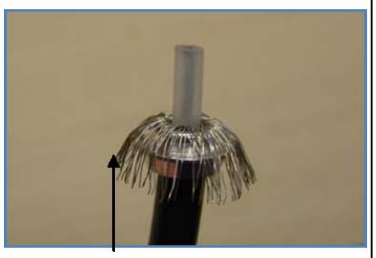
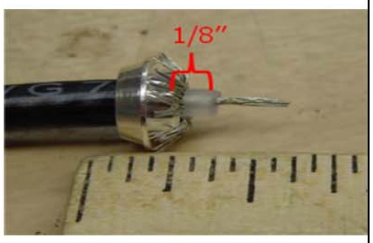
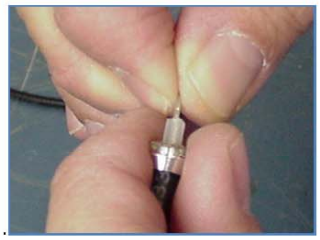
Step	Action	Illustration
3	Slip the clamp nut, metal washer, and rubber gasket onto the RG-58 cable. The threaded portion of the clamp nut should be positioned toward the connector end, and the smooth side of the rubber gasket should be positioned toward the clamp nut.	
4	Measure 3/8" down from the top of the cable, and strip outer jacket of the coaxial cable without damaging the metallic shielding.	
5	Remove the excess outer jacket.	
6	Slide the braid clamp down over the metallic shield. The outer jacket will stop the braid clamp.	

Continued on next page

EX – O.2: Job Aid (ET School), Continued

ET-A School Soldering

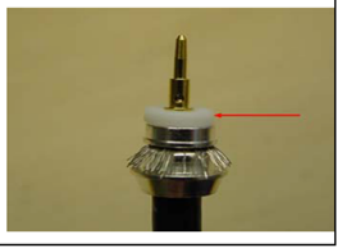
HOW to Install A BNC coaxial cable connectors using soldering, continued

Step	Action	Illustration
7	Flare the braided shield away from the dielectric and down over the braid clamp. Trim the shielding at the centerline of the braid clamp.	 Centerline
8	Remove all but 1/8" of the dielectric shield. Be careful not to cut the center core.	
9	Twist the center core to prevent the wires from fraying.	
10	Tin the center core. Apply solder to the core, being careful not to increase the diameter. Use a solder wick or an extractor to remove excess solder.	

Continued on next page

EX – O.2: Job Aid (ET School), Continued

HOW to Install A BNC coaxial cable connectors using soldering, continued

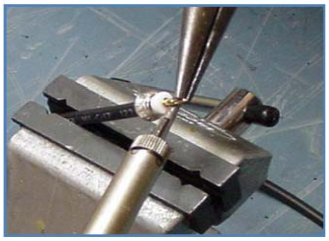
Step	Action	Illustration
11	Test fit the pin. Remove excess solder if necessary.	
12	The pin should lay flush against the dielectric shield. Ensure that no tinned core shows. Trim if necessary. Do not solder yet.	
Note: In the next step, you will install the dielectric bushing so that side A (recessed side) faces up to receive the tab on the bottom of the pin. Ensure that side B (no recess) faces down and sits flush against the metal bushing.		
13	Place the metal bushing over the dielectric shield, ensuring that it sits flush on the braid.	
14	Slide the dielectric bushing with pin onto the center core, flush with the metal bushing, and with side A up and side B down.	

Continued on next page

EX – O.2: Job Aid (ET School), Continued

ET-A School Soldering

HOW to Install A BNC coaxial cable connectors using soldering, continued

Step	Action	Illustration
15	Secure the cable into the vice.	
16	Solder the pin. Carefully add solder to the conductor hole. If the core was pre-tinned, additional solder may not be needed. DO NOT apply heat too long or the dielectric bushing could warp	
17	Allow the pin to cool. Check for a solid connection after cool down.	
18	Remove the connector from the vice.	
19	Slide the connector body's bushing over the pin. The bushing should sit flush against the dielectric bushing.	

Continued on next page

EX – O.2: Job Aid (ET School), Continued

HOW to Install A BNC coaxial cable connectors using soldering, continued

Step	Action	Illustration
20	Slide the metal connector body over the entire assembly.	
21	Secure the washer and rubber gasket with the camp nut.	
22	Tighten the clamp nut using your hands. Follow up with a wrench or pliers.	
23	The solder BNC connector is completed.	
24	Test the connector strength using the pull-apart method.	
End of procedure		

Instructor Guide Example

Overview

The Instructor Guide (IG) is often the final deliverable you will develop in your ISD efforts. It is the packaging of all the deliverables you already created (demonstrations, practices, assessments, content delivery/presentations, etc), put together the order you designed in your lesson blueprints so an instructor can facilitate the delivery of a lesson in the same manner each time it is taught.

Purpose

The purpose of these instructor guide example is to highlight some of the features and options, listed below, that can be developed using the IG Template.

The intent of the IG Template is to assist in your development of performance-based instruction; however it is NOT intended to be followed as direct cut-and-paste for every lesson you write, you should use this template to develop your lessons based on the design decisions made previously (captured on your lesson blueprint).

Features and Options

Some of the features and options you will see in this example, for how the IG Template can be tailored to meet your design decisions include:

- Development of a Preview/Pre-requisite “knowledge-based” lesson (not performance based, with no PT).
- Multiple “Demonstration-Practice”, “Demonstration-Practice” deliveries before the student would be assessed due to complexity of task or integrated PT (determined in design phase).
- Referencing the source of Content (knowledge) from which lecture is delivered, but not cut-and-paste into Instructor Guide (reducing redundancy)
- Appendices can be used for whatever purpose the customer or developer determines works with design.

Instructor Guide Example, Continued

NOTE!

DO NOT get hung up on the content or numbers in this example, this Instructor Guide is NOT a reflection of the product used in IT-A school. This example is for TRAINING PURPOSES ONLY.

This example also is NOT typical of the complete instructional support package that a developer should compile and provide to instructors; there are no associated practice exercises, Performance Test Checklists, Job Aids, homework assignments, Student Guide or Power Points that may be associated with a given lesson. This example is ONLY highlighting the use of the IG Template.

U.S. Department of
Homeland Security

United States
Coast Guard

Instructor Guide

Unit 6: Telephone Systems

IT-A School

MARCH 2012

About This Course

Source

This course has been created based on the following key sources of information:

Source:	Provides:
IT EPQ Form CG-3303C-IT dated 03-2009 Task Analysis, 2010	Performance Objectives (PO)
Curriculum Outline (*draft*) dtd April 2012	Additional information for course administration such as: • Max # students/course • Location • Delivery (resident / exportable) • Equipment / Resource needs • Instructor contact hours **See below for some of this information.*

Instructional Settings

This course will be delivered in various settings depending on the tools and equipment needed for each lesson. You need to check and reserve the settings in advance; specific labs or classrooms will be spelled out in each of the lessons as required.

Class Size

14 students are the maximum for this class.

Location

This course is delivered at Training Center Petaluma, IT School.

About This Course, Continued

Course Length

This course requires 153 training days – Telephone Systems, Unit 6, requires approximately 27 training days. The approximate allocation of times is listed at the beginning of each lesson.

Security Classification

No clearance is required; information has been tailored when necessary for training purposes only.

TABLE OF CONTENTS

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COURSE OVERVIEW

Introduction

Overview

This Instructor Guide is designed for you, the instructor(s), to assist in your delivery of the various units of instruction throughout IT-A school in order to graduate confident and competent apprentice Information Systems Technicians (IT). The only parts of the curriculum that will not be found within the IG are those lessons that follow the certification programs for A+ and Net+ modules.

Course Contents

This course consists of the following units:

- Unit 1. A+ (*Additional lessons on Sys Admin support tasks*)
- Unit 2. Fundamentals
- Unit 3. Premise
- Unit 4. Fiber
- Unit 5. Net + (*Additional lessons on Telephone Systems & Sys Admin Support tasks*)
- **Unit 6. Telephone Systems**
- Unit 7. System Administration
- Unit 8. Capstone

Performance Evaluations

You will evaluate students on the performance of each task delivered throughout this course. How that performance test will be scheduled, administered, and evaluated is detailed within each lesson and/or in the Performance Test Checklist (PTC) booklet.

Safety

Specific safety concerns, as necessary will be spelled out within those lessons to which it will apply. Personnel who operate or maintain equipment during the training must be thoroughly familiar with all aspects of personnel safety, and strictly adhere to every general as well as specific safety precautions contained in operating and emergency procedures, and in applicable governing directives.

Applicability: The safety precautions contained in this course are applicable to all personnel. They are basic and general in nature.

Introduction, Continued

Situational Awareness

You are responsible for maintaining situational awareness and shall remain alert to signs of student panic, fear, extreme fatigue, or exhaustion, or lack of confidence that may impair safe completion of the training session, and shall immediately stop the training, identify the problem, and make a determination to continue or discontinue the training.

Course Map

Illustration The image below illustrates a high-level grouping and sequencing for this course:

5 days	25 days	22 days	21 days	9 days	20 days	27 days	26 days	3 days
ALDP	***A+***	***Fundamentals* 4 TPOs***	***PREMISE 43 TPOs***	***Fiber 5 TPOs***	***Net +***	***Telephone Systems 49TPOs***	***System Admin 28 TPOs***	***Capstone Review of all TPOs***
	System Admin Support Tasks	Safety - Extinguish a Fire, Rescue an electric shock victim, test high voltage gloves, CPR. ***4 TPOs (ET "A")***	Safety Review	Safety Review	Telephone Systems & System Administration Support Tasks	Safety Review	Safety Review	Safety Review
			Documentation – practiced in all PT's (not tested)	Documentation – practiced in all PT's (not tested)		Documentation – Tested in PT ***1 TPO***		
			CGFIXIT – practiced in all PT's (not tested)	CGFIXIT – practiced in all PT's (not tested)		CGFIXIT – practiced in all PT's (not tested)	CGFIXIT – Tested in PTs ***14 TPOs***	
TPO TOTAL	**14 TPOs**	**8 TPOs**	**43 TPOs**	**5 TPO**	**8 TPOs**	**50 TPOs**	**42 TPOs**	

UNIT 6. TELEPHONE SYSTEMS

Introduction

Overview

This unit consists of the following lessons, which are further described below:

- Lesson 1. Introduction to Telephone Systems
- Lesson 2. Communicating and Programming
- Lesson 3. Backing up a Telephone System
- Lesson 4. Analog Telephones
- Lesson 5. Digital Telephones
- Lesson 6. Voice Over Internet Protocol (VoIP) Phones
- Lesson 7. Moves, Adds, and Changes (MACs)
- Lesson 8. Troubleshooting Analog, Digi8tal, and VoIP Phones
- Lesson 9. Analog Trunking
- Lesson 10. Digital Trunking
- Lesson 11. Troubleshooting Analog and Digital Trunks
- Lesson 12. Public Address Systems
- Lesson 13. Voice Mail
- Lesson 14. Auto Attendant
- Lesson 15. Disaster Recovery
- Lesson 16. Classroom Reset

Lesson 1. Introduction to Telephone Systems

Skills and knowledge obtained upon completion of this preview lesson include the following:

- Avaya CS1000E Familiarization
- Avaya CS1000E PBX circuit card locations

Lesson 2. Communicating and Programming

Skills and knowledge obtained upon completion of this preview lesson include the following:

- Communicating with the CS1000E PBX
- Navigating electronic documentation

Error! Use the Home tab to apply Heading 2,MT to the text that you want to appear here.**, Continued**

Lesson 3. Backing up a Phone System	Upon successful completion of this lesson, the students will be able to **BACK**-**UP** the CS1000E PBX customer data.
Lesson 4. Analog Phones	Upon successful completion of this lesson, the students will be able to **PERFORM** an ADD for an Analog phone.
Lesson 5. Digital Phones	Upon successful completion of this lesson, the students will be able to **PERFORM** an ADD for a Digital phone.
Lesson 6. VOIP Phones	Upon successful completion of this lesson, the students will be able to do the following: • **PERFORM** an ADD for a VoIP phone • **PERFORM** a set level configuration of an IP phone
Lesson 7. MACs	Upon successful completion of this lesson, the students will be able to do the following: • **PERFORM** a MOVE (hardware) for a phone • **PERFORM** a MOVE (software) for a phone • **PERFORM** a CHANGE (software) for a phone • **PERFORM** a CHANGE (software) for a VoIP phone
Lesson 8. Troubleshooting Phones	Upon successful completion of this lesson, the students will be able to do the following: • **TROUBLESHOOT** an analog phone with a hardware fault • **TROUBLESHOOT** an analog phone with a software fault • **TROUBLESHOOT** an analog phone with incorrectly programmed features • **TROUBLESHOOT** an digital phone with a hardware fault • **TROUBLESHOOT** an digital phone with a software fault • **TROUBLESHOOT** an digital phone with incorrectly programmed features • **TROUBLESHOOT** an VoIP phone with a hardware fault

Continued on the next page

Introduction, Continued

Lesson 8. Troubleshooting Phones, Continued

- **TROUBLESHOOT** an VoIP phone with a software fault
- **TROUBLESHOOT** an VoIP phone with incorrectly programmed features

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Lesson 9. Analog Trunking

Upon successful completion of this lesson, the students will be able to do the following:

- **INSTALL** a loop start telephone trunking service
- **INSTALL** a ground start telephone trunking service
- **INSTALL** a DID analog telephone trunking service
- **INSTALL** a E & M analog telephone trunking service

Lesson 10. Digital Trunking

Upon successful completion of this lesson, the students will be able to do the following:

- **INSTALL** a T-1 (DS1) telephone trunking service
- **INSTALL** an ISDN PRI telephone trunking service
- **TROUBLESHOOT** Network Systems with a Loopback test
- **DOCUMENT** installed data and/or voice systems

Lesson 11. Troubleshooting Trunks

Upon successful completion of this lesson, the students will be able to do the following:

- **TROUBLESHOOT** a phone with misconfigured levels of access
- **TROUBLESHOOT** a LOOP START analog telephone trunking service with a hardware fault
- **TROUBLESHOOT** a LOOP START analog telephone trunking service with a software fault
- **TROUBLESHOOT** a LOOP START analog telephone trunking service with misconfigured levels of access
- **TROUBLESHOOT** a GROUND START analog telephone trunking service with a hardware fault
- **TROUBLESHOOT** a GROUND START analog telephone trunking service with a software fault
- **TROUBLESHOOT** a GROUND START analog telephone trunking service with misconfigured levels of access

Continued on next page

Introduction, Continued

Lesson 11. Troubleshooting Trunks, Continued

- **TROUBLESHOOT** a DID analog telephone trunking service with a hardware fault
- **TROUBLESHOOT** a DID analog telephone trunking service with a software fault
- **TROUBLESHOOT** a E&M analog telephone trunking service with a hardware fault
- **TROUBLESHOOT** a E&M analog telephone trunking service with a software fault
- **TROUBLESHOOT** a E&M analog telephone trunking service with misconfigured levels of access
- **TROUBLESHOOT** a T-1 (DS1) telephone trunking service with a hardware fault
- **TROUBLESHOOT** a T-1 (DS1) telephone trunking service with a software fault
- **TROUBLESHOOT** a T-1 (DS1) telephone trunking service with misconfigured levels of access
- **TROUBLESHOOT** an INTEGRATED SERVICES DIGITAL NETWORK (ISDN) PRI telephone trunking service with a software fault
- **TROUBLESHOOT** an INTEGRATED SERVICES DIGITAL NETWORK (ISDN) PRI telephone trunking service with incorrectly programmed network capabilities

Lesson 12. Public Address Systems

Upon successful completion of this lesson, the students will be able to do the following:

- **INSPECT** Public Address system components
- **TROUBLESHOOT** Public Address System components

Lesson 13. Voice Mail

Upon successful completion of this lesson, the students will be able to do the following:

- **ADD** a voice mail box for a user to a phone system
- **PERFORM** a CHANGE for a user's voice mail box
- **DELETE** a voice mail box for a user to a phone system
- **BACKUP** a voice mail system

Introduction, Continued

Lesson 14. Auto Attendant

Upon successful completion of this lesson, the students will be able to do the following:

- **ADD** a menu item to the Auto Attendant service
- **CHANGE** a menu item on an auto attendant service

Lesson 15. Disaster Recovery

Upon successful completion of this lesson, the students will be able to do the following:

- **PERFORM** booth reset
- **PERFORM** disaster recovery by re-building a phone switch to include the following:
  - **PERFORM** an ADD for an Analog phone
  - **PERFORM** an ADD for an Digital phone
  - **PERFORM** a MOVE (hardware) for a phone
  - **PERFORM** a MOVE (software) for a phone
  - **PERFORM** a CHANGE (software) for a phone
  - **PERFORM** an ADD for a VoIP phone
  - **PERFORM** a set level configuration of an IP phone
  - **PERFORM** a CHANGE (software) for a VoIP phone
  - **PERFORM** a loop start telephone trunking service
  - **PERFORM** a ground start telephone trunking service
  - **PERFORM** a DID analog telephone trunking service
  - **PERFORM** a E & M analog telephone trunking service
  - **INSTALL** a T-1 (DS1) telephone trunking service
  - **INSTALL** an ISDN PRI telephone trunking service

Lesson 16. Classroom Reset

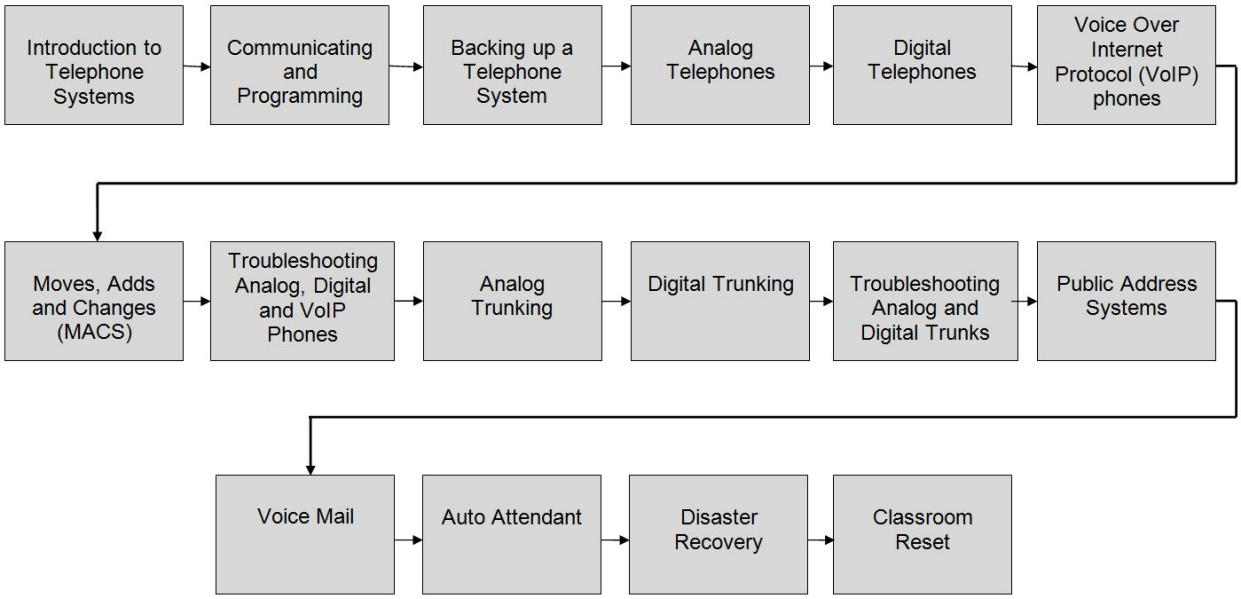
Skills and knowledge obtained upon completion of this final lesson include the following:

- **PERFORM** final booth reset to factory settings
- **PERFORM** tool bag inventory
- **COMPLETE** level 1 class critiques

Introduction, Continued

Unit Map

The image below illustrates a high-level grouping and sequencing for this unit:



Lesson 1. Introduction to Telephone Systems

Introduction

Overview

In this lesson you will cover a brief overview of the telephone systems unit and become familiarized with the Avaya CS 1000E.

Objective

Skills and knowledge obtained upon completion of this preview lesson include:

- Avaya CS 1000E Familiarization
- Avaya CS 1000E PBX circuit card descriptions and locations

References

The following are references for this lesson when the detail information is desired:

- Avaya CS1000E Circuit Card Reference Guide
- Avaya CS1000E Planning and Engineering Manual
- Avaya CS1000E Installation and Commissioning Manual

Instructional Settings

The lesson will be delivered in the following settings:

- Telephone Systems Classroom / General Classroom setting
- Telephone Systems Lab

Materials

You need the following materials to support delivery of this lesson:

For the Instructor:

- CD of Avaya CS 1000E manuals
- Computer
- Overhead Projector
- Performance Test Booklet
- *Avaya_CS1000E.ppt*

Continued on next page

Introduction, Continued

Materials, Continued

For the Students:

- Computer
- CD of Avaya CS1000E manuals
- Student guide
- Performance Test Booklet
- Tool Bag

Time and Staffing Delivery Requirements

The following are suggested times and staffing requirements for the various activities of this lesson. Minor adjustments are allowable.

Activity	Time Estimate	I:S Ratio	Description / Notes
Lecture 1	30 minutes	1:16	Overview
Tool Inventory	20 minutes	1:16	Instructor will have students inventory their tool kits
Lecture 2	2 hours and 30 minutes	1:16	Avaya CS 1000E Familiarization *Avaya_CS1000E.ppt*
Guided Practice	30 minutes	1:16	Students will view circuit cards in assigned booths & document card locations
Total training time:	**3 hours, 50 minutes**		

Unit Overview

Introduction

This topic is designed to provide an overview of unit objectives and to provide a high level explanation of the versatility of the CS1000E Call Server. Additionally, student tool bag inventories will be conducted in order to familiarize students with tools necessary for telephony systems maintenance and repair.

Opening Activity

We've come a long way from the cans on end of a string, to central switch panels that you called into to be patched to your caller destination, to long-corded telephones, to portable, to wireless…what do we need to do to maintain these new telephone systems…well you will be learning those skills and familiarizing yourself with the telephone systems that are being used at units throughout the Coast Guard.

How many of you have had any experience working on telephone systems, and what did you do?

Allow for some general discussion just to kick off the class and get them ready to learn! Instructors may want to come up with their own kick-off exercise, if so limit opening activity to no more then 10 minutes.

Lecture 1

1. Unit objectives:
   - Referencing the performance test booklet as a guide, refer students to the Table of Contents and discuss the objectives that will be completed throughout this unit.
2. CS1000E Call Server - Give a brief overview of topics covered in Unit:
   - Avaya CS1000E
   - Avaya CS1000E manuals on CD
   - Backing up customer data
   - Analog, Digital and VoIP phones
   - Trunks
   - PA Systems
   - Troubleshooting
   - Call Pilot
3. Disaster Recovery - Discuss what the students will be expected to accomplish on the final day of class after a phone switch crash with no backups.
   - See Lesson 15a, Lecture 1 for more information on the disaster recovery exercise.

1a. Tool Bag Inventory

Student Exercise

Have each student verify their tool bag contains the following items:

- Small Flathead screwdriver
- Small Phillips screwdriver
- Butt set
- Mod-Apt
- Punch tool
- Pick tool
- Scissors
- Multi-meter
- Testar

Testar

Show the students a Testar tool and explain how and when they will be using it for troubleshooting purposes.

- Plugs directly onto the 66 Block
- Provides a 1-2 pair modular jack for plugging in test equipment

1b. Avaya CS 1000E Familiarization

Overview

This topic is designed to provide an overview to the students of the following concepts, which support performance and delivery of tasks:

- Private Branch Exchange
- Avaya CS1000E
- Avaya CS1000E Cards
- Co-Resident and Non-Co Resident Architectures
- Circuit Card Safe Handling Procedures
- Layout of the CPPM card, FMD (Fixed Media Drive) and RMD (Removable Media Drive)
- Work Orders
- Card Location exercise
- Software Location

Lecture 2

Refer to the Avaya CS1000E manuals for more information on each of the following lecture points; see notes in the PowerPoint (*Avaya_CS1000E.ppt*) for supplemental talking points for the instructor.

1. Private Branch Exchange
    - Discuss the duties of a Private Branch Exchange (PBX)
        - Give examples of Coast Guard PBXs (Avaya CS1000E, Avaya CM6, Nortel NorStar, EON Millenium)
    - Discuss how the PBX integrates into a Central Office (CO)
    - Discuss how multiple PBXs and COs make the Public Switched Telephone Network (PSTN)
2. Avaya CS1000E
    - Discuss key features of the CS1000E
3. Avaya CS1000E System cards
    - Explain how to properly handle the circuit cards in order to prevent damage to the cards.
    - Discuss the Common Processor Pentium Mobile card (CPPM) and how it relates to the CS1000E.

Continued on next page

1b. Avaya CS1000E Familiarization, Continued

Lecture 2, Continued

- Discuss the Media Gateway Card (MGC) and how it relates to the CS1000E.
- Discuss the Common Processor Media Gateway card (CPMG) and how it relates to the CS1000E.
- Have students go to their assigned booths and look at each of these cards in operation.
    - Each desk has a corresponding booth assigned to it.

4. Avaya CS1000E peripheral equipment (Cards)

    - Discuss the following peripheral cards and how they each relate to the CS1000E.
        - Analog line card
        - Digital line card
        - Universal trunk card
        - E&M trunk card
        - TMDI DTI/PRI card
        - Have students go to their assigned booths and look at each of these cards in operation.

5. Co-Resident and Non-Co Resident Architectures

    - Discuss the CS1000E parameters of the Co-Resident Architecture.
        - Linux Base Operating System (OS)
        - Unified Communications Manager (UCM)
        - Element Manager (EM)
        - Call Server (CS)
        - Signaling Server (SS)
        - Network Routing Server (NRS)
    - Explain the CS1000E parameters of the Non-Co Resident Architectures
        - Unified Communications Manager (UCM)
        - Element Manager (EM)
        - SS
        - Network Routing Server (NRS)

Continued on next page

1b. Avaya CS1000E Familiarization, Continued

Lecture 2, Continued

6. CPPM card, Fixed Media Drive (FMD) and Removable Media Drive (RMD).
   - Discuss the layout of the CPPM card, Fixed Media Drive (FMD) and Removable Media Drive (RMD)
7. Work Orders
   - Discuss the contents of the Work Order section of Student Guide
     - Work Orders
     - Work Sheets
     - Run Sheets
     - Reference Materials
     - Card location work sheet
8. Software location:
   - Discuss location of backup files
     - Fixed Media Drive (FMD)
     - RMD (contains the only true backup copy)
     - USB (overrides RMD when both installed)

Guided Practice: Card Location Exercise

Exercise

Card location exercise – *See Student Guide, pg 6-4*.

Direct students to go to their booths and fill out card location work sheet found in the Student Guide. This is a guided practice, so if questions arise, or students need help, answer questions in order to guide them through this exercise.

This practice can be completed before the last part of the lecture is done or once complete; instructors should refer to the *.ppt* and see which delivery works best for them.

Objective: Students shall document the cards (System/Peripheral) found in each of the 10 slots of the Avaya CS 1000E PBX.

Time: Approx 15-30 minutes

Summary and Review

Review

Allow students an opportunity to review the topics just discussed by completing the Teach-to-Learn exercise, found in their Student Guide (Appendix A.1) as a way to enhance retention and transfer of the concepts/knowledge just learned. They will have 30 minutes to complete this exercise within their teams. Major concepts to be reinforced through this review in order to apply to follow-on lessons include:

- Avaya CS 1000E Familiarization
- Avaya CS1000E card descriptions and locations

Group Discussion (Q&A)

Allow students adequate time to discuss all the issues in this lesson. Instructors may write down the questions and answers below (identified by the students or other instructors) in order to assist you in preparation for future delivery of this lesson.

Questions	Answers

Lesson 3. Backing up a Telephone System

Introduction

Overview

In this lesson you will cover the following:

- 3a. How to backup the CS 1000E customer data
- 3b. How to restore the CS 1000E customer data

Objective

In this lesson you will cover the following:

Given a scheduled unit back-up policy, a change in the system, or a work order to back-up the call server and an administrative PC, **BACK-UP** the call server in accordance with manufacturer's technical manuals while following all safety and security procedures set forth in the National Electrical Code, COMDTINST M10550.25B Electronics Manual (Chapter 4), DHS 4300 Information Security Policy Series and CIM 5530.1C Physical Security Manual, as evidenced by successful verification of service confirmed using Command Line and Element Manager programming and completion of unit documentation.

References

The following are references for this lesson when detail information is desired:

- Avaya Software Input/Output Maintenance Manual 711

Instructional Settings

The lesson will be delivered in the following settings:

- Telephone Systems Classroom / General Classroom setting
- Telephone Systems Lab

Materials

You need the following materials to support delivery of this lesson:

For the Instructor:

- Computer
- Overhead Projector
- Avaya CS 1000E
- CF card

Continued on next page

Introduction, Continued

Materials, Continued

For the Students:

- Computer
- Student guide
- Avaya CS 1000E
- Performance test booklet
- CF card

Time and Staffing Delivery Requirements

The following are suggested times and staffing requirements for the various activities of this lesson. Minor adjustments are allowable.

Activity	Time Estimate	I:S Ratio	Description / Notes
Lecture 1	20 minutes	1:16	3a. Backing up the CS 1000E customer data
Demonstration	15 minutes	1:8*	Instructor will demonstration “How to backup the CS 1000E customer data”
Practice 1	15 minutes	1:8*	Student will complete practice activity on above topic
Lecture 2	15 minutes	1:16	3b. Restoring the CS 1000E customer data
Demonstration	20 minutes	1:8*	Instructor will demonstrate: “How to restore the CS 1000E customer data”
Exercise	30 minutes	1:8*	Students will practice restoring CS 1000E **There is NO performance test required for “restore”*
Performance Test	1 hour 45 minutes	1:8*	Task: **PERFORM** back-up for telephone system
Total training time:	**3 hours, 40 minutes**		

** Minimum of two instructors required regardless of class size*

3a. Back-up the CS 1000E Customer Data

Overview

This topic is designed to provide instruction and practice in order for students to become proficient in performing routine backups of the PBX.

Preparation Checklist

Instructors should ensure the following is checked before delivery:

- Classroom is set-up, computers operational, projector working, and student and instructional materials checklist verified.
- Telephone Systems lab is set-up; ensure all stations booted prior to lesson so ready for student practice, and practice scenarios posted at each stations (From Unit 6/Lesson3/Practices folder).

Job Aid

Instructor and students should have the following job aids readily available to support the performance and delivery of this task:

JA-6.3a: BACK-UP CS 1000E Customer Data Job Aid

JA-6.3b: Restore CS 1000E Customer Data Job Aid

Lecture 1 (Content)

Refer to the Avaya CS1000E manuals for more information on each of the following lecture points.

“Backup the CS1000E customer data”

- Discuss how to backup the CS1000E customer data
- Discuss internal versus external backups
- Discuss backup media types
  - Compact Flash
  - USB
- Discuss backup schedule options
  - Lack of official policy

3a. Back-up the CS 1000E Customer Data, Continued

Demonstration

Have the students follow-along with their job aid (listed above) as the instructor demonstrates the steps to perform a back-up of the CS 1000E customer data. The basic steps that should be explained in more detail as demonstration evolves (referencing Avaya CS1000E manuals) are as follows:

1. Login via PuTTY
2. Go to LD 43
3. Input EDD command
4. Describe data dump output information

Teaching Points: EDD is Equipment Data Dump (from Load 43)

As you make changes to the customer database, the information is stored in the working area of system memory. A Data Dump copies the data from the read-write area of the system memory to permanent storage.

Practice 1: Perform a Backup for a Telephone System

Preparation

To prepare for this practice exercise, ensure the following:

1. Instructor refers to Appendix A for Performance Test assessment instructions; these are the same standards which should be used during practices.
2. Verify student has a Compact Flash card in RMD
3. Verify all stations have access to tools, references and compact flash memory cards. Other materials needed:
   - Avaya Software Input/Output Maintenance Manual 711
4. Ensure a copy of the Practice Scenario is posted at each station (From Unit 6/Lesson3/Practices folder).

Administration

Follow the steps below to administer the practice (which are the same required of the student to complete the performance test, and what is required of them in the field):

1. Direct the students to retrieve their tools and references.
2. Direct the students to properly perform a back-up while adhering to all safety standards.
3. Inform the students that they will have 20 minutes to complete the exercise.
4. Set the timer for 20 minutes.
5. When the timer goes off, tell the students the practice is done and to stop working.
6. Use the checklist (in the Performance Test Checklist (PTC) booklet) to evaluate the student work against the standards to which they will be expected to perform to during the final assessment. Use the answer key provided in the next block of text, Evaluation Process.
7. Give feedback to the students as outlined in Step 1 of the Evaluation Process block of text that follows.

Practice 1: Perform a Backup for a Telephone System, Continued

Instructor Actions (Checkout)

After student has performed an EDD from LD 43 (as previously demonstrated), verify the output looks like the example below. Be aware you may have to scroll up to verify the “CCBR backup complete”.

CCBR backup Complete!
100 percent completed

Backing up reten.bkp

Starting database backup to local Removable Media Device
KEYCODE
DIRECTORY
CONFIG
DATA
HI
ZONE
ESET1
ESET2
NODE
SYSCFG
SMPCONF
FORWARDLISTFILE
PENDINGCPMSGLST
ACCOUNTS
ERL
ZBD
NZON
ELIN
SUBNET
NTP
MGC
SYSTEM_PARAMS
PORT_CUSTOM
PORT_STATE
EPTFLAG
Backing up reten.bkp to "/cf2/backup/single"

Database backup Complete!

TEMU207 Backup process to local Removable Media Device ended successfully.

Practice 1: Perform a Backup for a Telephone System, Continued

Instruction for Evaluation

Follow the instruction below to evaluate the practice:

1. Inform the student of the practice result:

IF	THEN
Go	Inform the student they are ready to proceed to the Performance Test.
No Go	1) Review the practice with the student. 2) Explain the discrepancies. 3) Answer any questions. 4) Administer another practice until the student succeeds in practice.

2. Return the PTC booklet to the student.

3b. How to Restore the CS 1000E Customer Data

Overview

This topic is designed to show students how to restore customer data into a PBX for informational purposes only*. There is no performance test associated with this task.*

Lecture 2

Refer to the Avaya CS 1000E manuals for more information on each of the following lecture points.

Restore the CS 1000E customer data

- Discuss how to restore the CS 1000E customer data
- Discuss restore media types
    - Compact Flash
    - USB

Demonstration

Using the *JA-6.3b: Restore CS 1000E Customer Data Job Aid*, have students follow along as you demonstrate the steps performed to restore the CS1000E customer data; as follows:

- Login via PuTTY
- Go to LD 43
- Input RES RMD command
- Go to LD 135
- Input SYSLOAD ACTIVE command
- Reboot call server
- Go to LD 43
- Input EDD command
- Describe data restore output information

Exercise

Have students practice restoring backed up data into their assigned PBX.

There is NO EVALUATION of this exercise, because there is no Performance Test. Instructors should ensure students properly restore the backed up data.

Assessment: Perform a Backup for a Telephone System

Preparation

Follow the instruction below to prepare for the performance test:

1. Verify student has a Compact Flash card in RMD
2. Verify all stations have access to tools, references and compact flash memory cards
3. Post a copy of the Test Scenario at each station.
4. Remind students to bring their Performance Test Checklist (PTC) booklet to the assessment.
5. Review instructions for administration found in the PTC booklet (Instructor version).

Administration

Follow the instructions for administration as outlined in the PTC booklet (Instructor version); additionally:

1. Direct the students to retrieve their tools and references.
2. Give the scenario / printed test to the student.
3. Allow enough time for student to read the instructions.
4. Ask if any questions, answer as necessary.
5. Emphasize the time limit for the test (Set the timer for 20 minutes).
6. Then, direct the students to properly perform a backup while adhering to safety standards
7. When timer goes off, tell students the test is done and to stop working.

Assessment: Perform a Backup for a Telephone System, Continued

Evaluation Process

Follow the instructions below to evaluate the performance test:

1. Use the PTC booklet to evaluate the student's performance.
2. Inform the student of the test result:

IF	THEN
Go	Sign and date for successful completion of the task on the Course Sign-Off Sheet.
No Go	1) Review the test with the student. 2) Explain the discrepancies. 3) Schedule remediation, as necessary. 4) Schedule the next attempt at PT. ***Note***: *If the third attempt is necessary, you must inform the School Chief.*

3. Return the PTC booklet to the student.
4. Enter the results into the SKILLS database.

Summary and Review

Review

Allow students an opportunity to review the topics discussed In Lessons 1 through 3 by assigning the Homework exercise, using this as a way to enhance retention and transfer of the concepts/knowledge just learned, and prepare them for application of these skills/knowledge as preparation for Lesson 4: Analog Telephones.

Group Discussion (Q&A)

Allow students adequate time to discuss all the issues in this lesson. It may be helpful for you to capture these commonly asked questions / answers below for future lesson delivery or course updates.

Questions	Answers

Homework Assignment

Give each student a copy of the “Telephone Systems Overview” homework questions and assign them a completion due date.

One evening to complete is recommended; let students know this will be reviewed in class before moving into the next lesson. (Answer Key is in Appendix A).

APPENDICES

Appendix A. Homework – Answer Key(s)

HW - Telephone Systems Overview (Lesson 3)

Telephone Systems Overview homework answer key.

Question #	Answer	Question #	Answer
1.	d	19.	c
2.	a	20.	d
3.	a	21.	d
4.	d	22.	b
5.	d	23.	b
6.	b	24.	d
7.	a	25.	c
8.	d	26.	b
9.	a	27.	b
10.	d	28.	d
11.	d	29.	b
12.	b	30.	c
13.	c	31.	b
14.	b	32.	a
15.	d	33.	b
16.	b	34.	a & c
17.	a	35.	b & d
18.	a		

Appendix B. Student Achievement Summary

Purpose

The *Student Achievement Summary* is used to record completion of Tasks. Upon completion, this form is used to enter each student's data into the Skills Database.

Directions

Step	Action
1	Print one copy of *Student Achievement Summary* (found on following 3 pages) per student.
2	Ensure student's name and class number are on each page.
3	Evaluators sign, initial, and date the last page.
4	After each task is completed check number of attempts, date and initial task.
5	At the conclusion of the unit, ensure all student achievement summaries are complete.
6	Enter student's information into Skills Database.

Summary Page

The *Student Achievement Summary* page is found in the back of the students PTC Booklet and kept at end of unit by the instructor as a final record of the student's achievement. Sample below:

STUDENT ACHIEVEMENT SUMMARY
PERFORMANCE QUALIFICATION STANDARDS (PQS)

Unit 6: Telephone Systems Tasks

Student:		Class #:				
PO	TASK	ATTEMPT			DATE	INIT
		1st	2nd	3rd		
E1.4E03.17	**PERFORM** backup for telephone systems	☐	☐	☐		
E1.4E02.09	**PERFORM** an ADD for an analog phone	☐	☐	☐		
E1.4E02.10	**PERFORM** an ADD for a digital phone	☐	☐	☐		
D1.4D05.01	**PERFORM** an ADD for a VOIP Phone	☐	☐	☐		
D1.4D05.02	**PERFORM** set level configuration of an IP phone	☐	☐	☐		
D1.4D05.03 E1.4E02.07/.08/.11	**PERFORM** MOVES and CHANGES for a phone	☐	☐	☐		
E1.4E02.17	**TROUBLESHOOT** a telephone system with a faulty analog phone	☐	☐	☐		
	TROUBLESHOOT a telephone system					

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USCG Training Center Petaluma

IT-A School

[Address Line 1]

[Address Line 2]

POC: [Enter text.]

(000) 000-0000

APPENDIX P

Tip Sheets for Development

Table of Contents

Use the following table to access the Tip Sheets for the information you are looking for:

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Tip-P.1: CONTENT – *Too much* versus *Not enough*

The “content” part of a Lesson plan consists of detailed subject-matter content and procedural information for teaching your lesson or lecture part of the course. The content provides the instructor with:

- Overview of knowledge, skills or attitudes to be taught.
- Background information to enhance the training.
- Teaching outline/script.

What it is **NOT**, is the “nice to know” information that a designer or instructor feels needs to be included in the lesson, but does not directly tie to the lesson objective.

When we refer to “content” we are referring to the bulk of the lesson text, that information that supports the lesson materials in the Student Guide or other instructional materials.

- Provides standard instructor notes on delivery techniques
- Includes sufficient detail on key information
- Includes standard instructor questions for prompting student response
- Reference to applicable PowerPoint slides as applicable

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Tip-P.2: What Level 2s Are and Are Not

Now that you're at the "develop" stage, it is time to talk about test **validity**, **reliability**, and **practicality**. We'll go over what each of those terms means:

Validity. A test is valid if it actually measures or assesses what it claims to measure or assess. A test is valid if:

- Its individual items are consistent with the objectives the test claims to assess.
- The items for each objective are representative of the **range** of items possible to develop for that objective.
- Objectives upon which the test is based have been adequately sampled.

Reliability. A test is reliable if it consistently measures what it claims to measure, and we have a high degree of confidence in the scores that it produces. Tests are considered unreliable when something causes unpredictable error. Some of the ways you can ensure your test instruments are more reliable are:

- Avoid essay questions. It is very hard to grade them objectively and consistently. Therefore, they are not particularly reliable measures. If you have to use the essay format, use checklists, model responses, key words, or phrases to ensure more objective evaluation.

If you are testing competency, make sure your test distinguishes between skilled and unskilled learners.

- Do **NOT** use true/false questions. There is a fifty-fifty chance learners will get a true-false item correct.
- Use at least three distractors (i.e., wrong answers/choices) when constructing multiple-choice questions. Each additional distractor reduces the possibility of getting the correct answer by guessing.
- Watch test length. Too few test items, per objective,increase the likelihood that the successful test taker won't really have learned the job. Using only one item per objective means the student may guess the right answer.
- Edit test items for clarity and easy-tounderstand/interpret directions. Ambiguity can result in an unreliable test instrument.
- Unexpected or hostile conditions for taking the test can make it unreliable (e.g., too hot or cold, using a computer for the first time, excessive anxiety, etc.).
- Use a checklist or rating form, and practice grading all of one question for the entire class to increase test reliability.

Tip-P.2: What Level 2s Are and Are Not, Continued

Practicality. Time constraint mean that there is a trade off between making a test instrument valid and reliable and the realities of our work world. In short, as test designers and developers, we've got to balance practicality with reliability and validity. The one time we don't want to compromise on ensuring high reliability and validity is for situations that involve life or death decisions. For example, for safety tests, certifying people in administering CPR, etc., we want to make sure our tests have high reliability and validity. Your test items should be consistent with the performance objectives they're supposed to measure. Make sure the performance you are asking students to do in the test matches the performance indicated in the objective.

What types of tests can you develop?

- **Performance tests.** These tests measure skills. The learner must demonstrate the ability to do something such as operate equipment, drive a ship, or speak a foreign language. Simulations can be used for performance tests. In some cases, practicality will dictate that you have to develop a test that requires a performance equivalent to the one desired but not exactly the same
- **Knowledge tests.** There are two types of knowledge tests--**subjective** and **objective**. Essay questions are an example of a subjective knowledge test, but we've already told you to avoid using them unless you absolutely have to. Objective knowledge tests are:
    - Oral
    - True/false (do **NOT** use!)
    - Multiple-choice
    - Matching
    - Completion (fill in the blanks)

Given these choices, what types of tests should you develop for particular objectives? The answer to that question depends on the learning capability you are testing (i.e., verbal information, intellectual skills, motor skills, or attitudes). These are the things you want to think about when you are developing test items for the different learning capabilities:

Verbal information. Use the conditions and behavior parts of the performance objectives to guide your development work. Short answer, completion, or "fill in the blanks" are your best choices.

Tip-P.2: What Level 2s Are and Are Not, Continued

Intellectual Skills. Make sure students are given the materials specified in the conditions part of the objective and that they are required to respond in the same manner specified in the objective's performance statement. Try to make directions separate from the test item.

To help ensure directions are clear, state the intellectual skill to be performed first, then follow that with instructions about how to respond to demonstrate the skill.

Motor Skills. To measure performance of motor skills, you need instructions for the performance and a checklist you can use to record your evaluation of the performance. Be sure instructions tell the students how their performance will be judged.

Attitudes. For training that focuses on leadership or diversity, we suggest you use a checklist or rating scale survey for evaluating change in attitudes. For example, if you wanted a trainee to demonstrate a courteous manner toward customers, you could develop a checklist to be used when observing the student's behavior during a roleplay, etc.

***NOTE**: For an exhaustive list of "do's and don'ts" for test item construction, we strongly suggest you use Training Center Yorktown's HPT Handbook. It contains a wealth of information on good test item construction, as well as numerous examples that serve as test item models.*

Tool: See **Do's and Don'ts For Various Types of Tests** chart at the end of this chapter. It will help you avoid some of the common mistakes in test item construction.

Continued on the next page

Tip-P.2: What Level 2s Are and Are Not, Continued

ICW tests: See the Coast Guard's **ICW Standards and Styles Guide** for guidance in developing ICW product tests. We've extracted some of that information and reproduced it below:

- Provide an initial screen at the beginning of a test that states the number of test items and estimated time for completion.
- Provide an escape option for anyone who wants to back out at this point.
- At a minimum, show items that were missed. (Students may recall wrong answers as correct if this is not done). Consider reviewing wrong items by showing the wrong answer selected along with the correct answer.
- Just as with any type of test item construction, avoid using:
- None of the above
- All of the above
- True/False
- Negatively worded test items
- When you have to use a negatively worded test item, capitalize the negative terms and underline them (e.g.,NOT).
- Write completion items so that only one word, phrase, or value completes the sentence. Place the blank near the end of the sentence.
- Use a pre-test at the beginning of a module to collect information about the user such as prior knowledge of the material, learning style, and preferences.
- Use progress checks to determine if the learner is progressing as intended. The CBT can use this information to provide guidance to the users or send them to an appropriate section. The progress check also informs students of how they are doing and then lets them choose what to do next.
- Use a post-test to certify that the user has reached a specific level of proficiency. Be sure you "trap" the answers so that data are recoverable.

Tip-P.3: Media Format and Instructional Strategy

Advantage and Limitations

Depending on the training situation, instructional media have distinct advantages and limitations. Some of these factors are summarized below. Consider them carefully when selecting instructional media.

DELIVERY FORMAT	ADVANTAGES	LIMITATIONS
Classroom Instructor	• Cost-efficiency • Target audience preference • Versatility, flexibility, adaptability to audience and situation	• Instructor skills and experience in the method(s) specified • Few or no take-away's
Print	• Includes common types of materials • Variety and ease of application • Simple materials may be produced quickly and inexpensively	• More sophisticated materials require more time and money to produce • Literacy level of learners • Static presentation • Periodic/time-consuming updates
Audio Visual (i.e. PowerPoint, images, video clips)	• Can present information in systematic, developmental sequences • Simple media may be produced quickly and inexpensively • Very efficient with large groups • Equipment is readily available • Useful when visualizing motion, showing relationships, and providing impact • Can be reused	• More sophisticated media require more specialized skills, time, and money to produce • Investment in equipment may be reduced as new technologies emerge • Design must engage learner responses to avoid passive learning conditions
Interactive Multimedia Instruction (IMI) (i.e. instructional video, Multimedia / 3-D modeling, CBT, simulators, etc.)	• Can engage learners through impact and involvement • Can compress large amounts of information into a short presentation • Can provide more effective communication than a single medium • Can be customized for learner needs and knowledge level	• Equipment and production costs are high for complex programs • May require additional equipment, complex set-up, and careful coordination during planning, preparation, and use • Specialized production staff required ***Developers should refer to ADL SOP and contact appropriate E-learning specialist.*
Training Devices (i.e. Simulators)	• Students are able to practice a full range of skills in a high-fidelity simulation with operational equipment, including emergency or contingency scenarios which are not practicable in the actual performance setting. • Simulators provide a complete set of cues and consequences related to the performance requirements.	• Simulators are expensive to develop and maintain. They require revision to keep pace with technological and operational change. Practice is limited to the number of available simulators.

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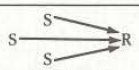
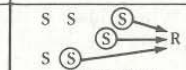
Tip-P.4: Suggested Training Media and Learning Methods for Various Learning Problems

Figure 14. Suggested Training Media and Learning Methods for Various Learning Problems

Orientation	Integration	Thought Process	Level I S→R *Reaction*	Level II S→R, S→R *Sequence*	Level III  *Perception*	Level IV  *Conceptual*
Visual	*Questioning*	*Systematic*	Workbooks Demonstrations Presentations/ Discussions Reference Manuals	Presentations/ Discussions Checklists Workbooks Job Instruction Training (JIT)	Presentations/ Discussions Workbooks Q&A Books Reference Manuals	Cases/In-Basket Exercises Group Discussions Reference Manuals Problems Experiments
		Intuitive	Demonstrations Presentations/ Discussions Reference Manuals	Workbooks Presentations/ Discussions Demonstrations JIT	Games JIT Case Problems Video	Cases/Games Role Playing Exercises/In-Basket Exercises
	Adaptive	*Systematic*	Programmed Instruction Instructional Manuals Repetition	Programmed Instruction In-Box Exercises Checklists Workbooks	Programmed Instruction Reference Manuals Video Modeling	Programmed Instruction Reference Manuals Modeling In-Basket Exercises
		Intuitive	Programmed Instruction Demonstrations	Programmed Instruction Demonstrations In-Box Exercises	Modeling Video Exercises	Modeling In-Basket Exercises Games
Auditory	*Questioning*	*Systematic*	JIT Demonstrations	JIT Demonstrations	Case Problems Video	Case Problems Coaching
		Intuitive	JIT Coaching Demonstrations	JIT Coaching Demonstrations	Case Problems Video Buzz Groups Exercises Coaching	Role Playing Case Problems Buzz Groups Exercises Coaching
	Adaptive	*Systematic*	Demonstrations Audiotapes JIT	Demonstrations Audiotapes JIT	Lectures Modeling Video	Lectures Modeling
		Intuitive	JIT Coaching Demonstrations	JIT Coaching Demonstrations	Modeling Buzz Groups Exercises Coaching	Modeling Buzz Groups Exercises Coaching Role Playing
Physical	*Questioning*	*Systematic*	JIT Repetition Practice Coaching	JIT Repetition Practice	Coaching JIT	In-Basket Exercises JIT
		Intuitive	Experiments JIT Practice Games	JIT Practice Experiments	Role Playing Case Problems Games Exercises	Role Playing In-Basket Exercises Games Exercises
	Adaptive	*Systematic*	JIT/Coaching Repetition Practice Programmed Instruction	JIT Repetition Practice Programmed Instruction	Modeling Programmed Instruction Coaching	In-Basket Exercises Modeling Programmed Instruction
		Intuitive	Practice JIT Games	JIT Practice	Role Playing Games Simulations Exercises	In-Basket Exercises Games Simulations Exercises
Content design should provide these learning methods:			• Associations • Coaching • Imagery • Mnemonics	• Reversals of Sequence • Imagery • Memory Links	• Motivation • Theory • Objectives • Common Denominators • Concepts • Analogies • Overviews • Categories • Generalizations • Discriminations	• Patterns • Filters • Background • Hypotheses • Confidence • Strategies • Decision Trees

Reference: Planning, Packaging, and Presenting Training: A Guide for Subject-Matter Experts, by Gene E. Custer, University Associates, Inc: San Diego, CA, page 54, 1984.

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APPENDIX Q

Job Aids for Implementation Phase

Table of Contents

Use the following listing to access the job aid for the task you want to complete.

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JA – Q.1: How to Plan for the Pilot

Purpose	This job aid is designed to help you plan for the pilot of your instructional materials
Who should use this JA	You should use this job aid if you are a course developer responsible for planning for a pilot. Ideally, you are a graduate of the Coast Guard Course Designer Course (CDC) or have other training as a curriculum development expert.
When you should use this JA	Use this job aid when the instructional materials are almost fully developed so you can begin getting ready to test them all.
How to use this JA	Follow the steps as literally as is practical, and in the sequence provided. Change and add to the job aid as required by local procedures.

JA – Q.1: How to Plan for Pilot, Continued

Course:	Product:
Action	**Do This**
1. Agree to a date for pilot	**a.** Review target date with course sponsor ❑ Is this a must-live-with date? ❑ How much time is available to prepare for the pilot? **b.** Record target roll-out date: _____
2. Nominate instructors	**a.** Confirm that instructors are available, qualified, and certified to deliver assigned units of instruction **b.** List nominated instructor(s) and role(s) Instructor:_____ Lessons: _____ Instructor:_____ Lessons: _____ Instructor:_____ Lessons: _____ **c.** Make sure that instructors are: ❑ Qualified (PERJC) ❑ Occupationally competent ❑ Qualified to deliver assigned units/lessons/activities ❑ Available in sufficient numbers per the instructor guide
3. Determine delivery site(s)	**a.** List delivery site(s) Classrooms:_____ Labs:_____ Other Facilities:_____ **b.** Schedule the facilities for the dates and times specified

Continued on the next page

JA – Q.1: How to Plan for Pilot, Continued

Course:	Product:
Action	**Do This**
4. Schedule Students	**a.** Prepare a trial student roster **b.** Check if: ❑ Each prospective student meets course prerequisites ❑ You have accurate contact details for students and command ❑ Number of students listed does **NOT** exceed course limits **c.** Prepare pre-course work packages ***Note:*** *Make sure that joining instructions include a school POC to confirm receipt of instructions and materials* **AND** *clearly explain the consequences of failure to complete required pre-course work.* **d.** Send welcome aboard packages **AND** pre-course work to all prospective students on final roster
5. Order and set up course requirements from the instructor guide	Are the following items available and in good working order? ❑ training aids, equipment, and supplies ❑ texts and references ❑ any additional student materials required ❑ any additional instructor materials required
IMPORTANT:	Make sure that the specified equipment and tools are in good working order and available at the right facility in time for instructor preparation and set-up.
6. Plan for data-collection and analysis	**a.** Review data collection forms from this appendix: **b.** Specify data collecting activities to be performed by: ❑ Instructors ❑ Course Developers ❑ Observers (if others) ❑ Students **c.** Prepare pre-course work packages **d.** Create any special data collection tools, schedules, and procedures as needed

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JA – Q.2: How to Prepare for the Pilot

Purpose	This job aid is designed to help you prepare for the pilot of your instructional materials
Who should use this JA	You should use this job aid if you are a course developer responsible for preparing for a pilot. Ideally, you are a graduate of the Coast Guard Course Designer Course (CDC) or have other training as a curriculum development expert.
When you should use this JA	Use this job aid when the pilot plan has been completed and you are starting to prepare for the pilot.
How to use this JA	Follow the steps as literally as is practical, and in the sequence provided. Change and add to the job aid as required by local procedures.

JA – Q.2: How to Prepare for the Pilot, Continued

Course:	Product:
Action	**Do This**
1. Train and prepare instructors	**a.** Discuss with instructors: ❑ Course Procedures/Administration ❑ Instructor Guide layout ❑ Any special instructions **b.** Conduct a walk-though or teach-back of course using only instructors and instructional developers
2. Revise training materials (if needed)	**a.** This revision would most likely occur in one or more of the following areas: ❑ Planning for the Pilot Test (WS – R1) ❑ Course review with instructors ❑ Teach-back of course **b.** Make changes to the curriculum outline
3. Determine whether pilot site is ready	**a.** Trainees have received orders and pre-course materials (if any) **b.** Simulators/hands-on materials are ready **c.** Reference materials are set up for students **d.** Data-collection instruments have been set up for Evaluators **e.** Instructional Materials are organized for instructor use (i.e. workbooks, tests, practice materials, training media, job-aids) **f.** Training Environment is ready (i.e. whiteboards, easel charts, desks, chairs, break-out rooms, lighting, etc.) **g.** Training area is ready (computers, projectors, extra bulbs, podium, power cords)
IMPORTANT:	If you determine that cannot make last minute adjustments to the course, you must determine to either delay or cancel the pilot course. Discuss with your supervisor what the correct course of action is at this point.

JA – Q.3: How to Conduct the Pilot

Purpose	This job aid is designed to help you conduct the pilot of your instructional materials
Who should use this JA	You should use this job aid if you are a course developer responsible for conducting a pilot. Ideally, you are a graduate of the Coast Guard Course Designer Course (CDC) or have other training as a curriculum development expert.
When you should use this JA	Use this job aid when the pilot has started.
How to use this JA	Follow the steps as literally as is practical, and in the sequence provided. Change and add to the job aid as required by local procedures.

A – Q.3: How to Conduct the Pilot, Continued

Step	Action
1	Review worksheet WS-R3, the Pilot Course Implementation Form
2	Establish who will be available to evaluate to capture data on WS-R3 for each lesson in the course.
3	Determine how often you wish to poll students for their feedback about the pilot (after each lesson, day, unit, or course)
4	Conduct pilot / Deliver lessons
5	Capture student feedback on a level one evaluation instrument (see Evaluation SOP for details about how to administer level 1 evaluations)
6	Ensure PCIF is completed for each lesson
7	Conduct a end of course survey (see Chapter 7 for details about how to administer level 1 evaluations)
8	Conduct a debrief with course designers, evaluators, instructors, and training administrators (and students if necessary) capturing additional feedback about the course
9	Review all data collected from the pilot
10	Outline changes to course material for the Pilot Course Evaluation Report

JA – Q.4: How to Evaluate the Pilot

Purpose	This job aid is designed to help you evaluate the pilot of your instructional materials
Who should use this JA	You should use this job aid if you are a course developer responsible for evaluating a pilot. Ideally, you are a graduate of the Coast Guard Course Designer Course (CDC) or have other training as a curriculum development expert.
When you should use this JA	Use this job aid when the pilot has been completed and it is time to assess how it went.
How to use this JA	Follow the steps as literally as is practical, and in the sequence provided. Change and add to the job aid as required by local procedures.

JA – Q.4: How to Evaluate the Pilot, Continued

<table>
<tr><th>Step</th><th>Action</th></tr>
<tr><td>1</td><td>Review all completed PCIFs.</td></tr>
<tr><td>2</td><td>Organize data into qualitative and quantitative.

(Note: Qualitative involves analysis of data from open ended questions such as: “what did you like most that lesson?” Quantitative data involves analysis of numerical data such as “percentage of students passing performance test on first try.”</td></tr>
<tr><td>3</td><td>Review all evaluator, designer, instructor, and student comments about the course. Determine if comments are “cosmetic” or “substantive.”

<table>
<tr><th>IF the suggestion is:</th><th>THEN</th></tr>
<tr><td>cosmetic</td><td>Consider if cosmetic changes make the course better without sacrificing validity or reliability.</td></tr>
<tr><td>substantive</td><td>Make changes if they are feasible and rational</td></tr>
</table>
</td></tr>
<tr><td>4</td><td>Summarize data into a report (See Appendix S for an example of a pilot course evaluation report).</td></tr>
<tr><td>5</td><td>Decide performance impact of not implementing the recommendations

<table>
<tr><th>IF performance impact is:</th><th>THEN the course</th></tr>
<tr><td>None</td><td>Is ready for implementation</td></tr>
<tr><td>Minor
(Only cosmetic deficiencies)</td><td>Course is at acceptable level for implementation</td></tr>
<tr><td>Major
(Deficiencies are substantive in nature)</td><td>Does NOT meet specifications AND requires revision before implementation.
Determine if another pilot is required prior to implementation</td></tr>
</table>
</td></tr>
<tr><td>6</td><td>Archive decision for future reference</td></tr>
</table>

JA – Q.5: How to Roll out the Final Product

Purpose	This job aid is designed to help you roll out the final product of your instructional materials
Who should use this JA	You should use this job aid if you are a course developer responsible for rolling out the final product. Ideally, you are a graduate of the Coast Guard Course Designer Course (CDC) or have other training as a curriculum development expert.
When you should use this JA	Use this job aid after the pilot has been evaluated and the Pilot Course Evaluation Form (PCER) has been routed for review.
How to use this JA	Follow the steps as literally as is practical, and in the sequence provided. Change and add to the job aid as required by local procedures.

JA – Q.5: How to Roll out the Final Product, Continued

Step	Action
1	Review pilot course findings and recommendations
2	Discuss findings with supervisors and stakeholders
3	Agree upon course changes
4	Make course corrections
5	Complete materials acceptance procedure
6	Lock down accepted materials according to local training management procedures
7	Roll-out new instruction
8	Close out project and release resources

APPENDIX R

Worksheets for Implementation

Table of Contents

These worksheets are designed work in concert with the Implementation Job Aids presented in *Appendix Q*. There is not a one-to-one relationship since not all jobs need a standard way of capturing the associated data.

Use the following listing to access the worksheet for the task you want to complete.

Worksheet Number	Title
WS – R.1	Pilot Course Implementation Form (PCIF)

Worksheet Access

Samples of the worksheets are included in this appendix. Refer to the *SOP Downloads (Word Version)* page on TRACEN Petaluma's internet website for the most recent and usable copies of all worksheets and templates:
http://www.uscg.mil/hq/cg1/TracenPetaluma/SOP/default.asp

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WS – R.1: Pilot Course Implementation Form (PCIF)

WS-R.1: PILOT COURSE IMPLEMENTATION FORM

Please complete this form as thoroughly as possible and attach supporting materials as necessary.

Title of Course:	Course Start Date:	Course End Date:	Lecture Evaluation Date:

Unit/Lesson #:	Lesson Title:	Instructor:	Pilot Course Evaluator:

Lesson Times

Proposed Duration:	Lecture / Lab /Etc.	Proposed Time		Actual Time		Mid-Lecture / Lab Break
		Start	Finish	Start	Finish	
Actual Duration:						

Time-line notes:

Job Aids

Yes□ N/A□

Job Aid Name:	Job Aids Used: Yes□ No□
Job Aid Name:	Job Aids Used: Yes□ No□

TERMINAL PERFORMANCE OBJECTIVE (TPO)

STEPS

#	Step	How Met

METHODS OF INSTRUCTION
(List the instructional methods used)

☐ Lecture ☐ Demonstration ☐ Exercise/Practical ☐ Exercise ☐ Exam/Review
☐ Laboratory ☐ Role Play/Simulation (RP/S) ☐ Video Tape/DVD (VIDEO)
☐ Computer-Based Training (CBT)

Other:

WS_R.1: Pilot Course Implementation Form Page 1 of 2

WS – R.1: Pilot Course Implementation Form (PCIF), Continued

WS-R.1: PILOT COURSE IMPLEMENTATION FORM

Please complete this form as thoroughly as possible and attach supporting materials as necessary.

Title of Course:	Course Start Date:	Course End Date:	Lecture Evaluation Date:

INSTRUCTIONAL MATERIALS, EQUIPMENT & TECHNOLOGIES
(List materials required by the Instructor to present this lesson)

☐ Instructor Guide ☐ CG Addendum ☐ Computer ☐ PowerPoint ☐ Web Access ☐ Classroom
☐ Handouts ☐ Lab Exercise ☐ Role Play/Simulation ☐ Video Tape/DVD (VIDEO)
☐ Computer-Based Training
Other:

STUDENT MATERIALS
(List materials required by the student)

☐ Student Guide ☐ CG Addendum ☐ Desktop Computer ☐ Web Access ☐ SAROPS
Other:

ASSIGNMENTS
(List items required of the students)

☐ Pre-reading ☐ Pre-exercise ☐ Pre-Exam ☐ Pre-Computer-Based Training (CBT)
☐ Post-reading ☐ Exercise ☐ Exam ☐ Laboratory ☐ Computer-Based Training (CBT)
Other:

ASSESSMENT
(List the methods used to assess student learning performance):

Method of Assessment	System for Grading

OBSERVATIONS

RECOMMENDATIONS

ADDITIONAL COMMENTS

WS_R.1: Pilot Course Implementation Form Page **2** of **2**

APPENDIX S

Additional Examples for Implementation Phase

Table of Contents

Use the following table to access the example you need:

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EX – S.1: Pilot Course Evaluation Report (PCER)

Cold Water/Ice Diving Course (CWID)

Pilot Course Evaluation
February 26 – March 5, 2010

Executive Summary

Background

Training Center (TRACEN) Yorktown's Performance Systems Branch (PSB) was requested to perform a Pilot Course Evaluation of the Cold Water/Ice Diving Course. As a Training Specialist (GS-1712), with experience in curriculum design, development, implementation, evaluation, and instruction, I was assigned to complete an overall evaluation of the training.

Pilot Course Evaluation Forms (PCEFs), (Attachment 1), were used and attached. They are designed to identify and compare approved Terminal Performance Objectives (TPOs) and Enabling Objectives (EOs) with what was actually delivered during the training event.

Executive Summary, Continued

Observations

- One student had difficulty with the dry suit exercise in the pool, but the instructors handled the situation very professionally. The correct neurological exam was conducted, diving operations continued, and the decision to ask the student to forego the ice dive was correctly made. This demonstrated the value of the “crawl-walk-run” nature of the course. If the pool evolution was skipped and the student was instructed to demonstrate dry suit procedures in open water, there may have been serious problems.

Executive Summary, Continued

Suggestions

- Although the course is as "performance-based" as possible, a day of classroom instruction is still needed. There was some difficulty getting the class started on time due to the lack of a dedicated classroom. The local MSST was holding an "All-Hands" meeting and a personnel inspection which delayed the use of the classroom. Although this did not seem to impact the effectiveness of the classroom instruction, a dedicated classroom facility would be preferable.
- Even though few Coast Guard divers will conduct their ice diving activities though a hole that they cut in the ice, the present sequencing of "pool to cold water to ice" gives the instructors the opportunity to observe students as they transition through considerably more challenging training evolutions. Also, it lets the instructors control the safe transition as well. If the course is moved next year, perhaps a day of diving off of a cutter (even if in a port) will give students more "real-world" experience. The use of a dive stage, Jacob's ladder, and tag-outs can be then emphasized.
- The training was conducted so well there are almost no suggestions for improvement, except for the inclusion of the evacuation drill. Mailing a Student Guide to the attendees prior to their attendance may add to the retention of the material, but the practical application of the techniques and procedures is practiced enough that retention is not a concern. The course is well thought out and well taught. Routine changes to course material and training aids should be accomplished as needed.

WS-R.1: PILOT COURSE IMPLEMENTATION FORM

Please complete this form as thoroughly as possible and attach supporting materials as necessary.

Title of Course: Cold Water/Ice Diving Course	**Course Start Date:** 26 Feb 2010	**Course End Date:** 5 Mar 2010	**Lecture Evaluation Date:** 2/26/2010

Unit/Lesson #: Lesson 1	**Lesson Title:** Prepare the Dive Plan.	**Instructor:** Chief "Sample"	**Pilot Course Evaluator:** Dan Montgomery

Lesson Times

Proposed Duration: 1 hr 55 minutes	**Lecture / Lab /Etc.**	**Proposed Time**		**Actual Time**		**Mid-Lecture / Lab Break**
		Start	**Finish**	**Start**	**Finish**	
	Lecture	0900	0945	0900	0937	13 minute break
Actual Duration: 1 hr 50 minutes	Practical Exercise	0955	1055	0950	1050	

Time-line notes:

Job Aids

Yes☐ No ☒

Job Aid Name: None	**Job Aids Used: Yes☐ No ☒**
Job Aid Name:	**Job Aids Used: Yes☐ No☐**

TERMINAL PERFORMANCE OBJECTIVE (TPO)

1.1 Given a real or simulated Operations Order (OPORD) or Deployment Order, **PREPARE** a dive plan without error.

STEPS

#	Step	How Met
1.1.1	**IDENTIFY** mission objectives	Lecture and Practical Exercises
1.1.2	**SELECT** mission location.	Lecture and Practical Exercises
1.1.3	**SCHEDULE** the mission	Lecture and Practical Exercises
1.1.4	**IDENTIFY** operational hazards	Lecture and Practical Exercises
1.1.5	**SELECT** dive team personnel	Lecture and Practical Exercises

METHODS OF INSTRUCTION

(List the instructional methods used)

☒ Lecture ☐ Demonstration ☒ Exercise/Practical ☐ Exercise ☐ Exam/Review ☐ Laboratory
☐ Role Play/Simulation (RP/S) ☐ Video Tape/DVD (VIDEO) ☐ Computer-Based Training (CBT)

Other:

WS-R.1: PILOT COURSE IMPLEMENTATION FORM

Please complete this form as thoroughly as possible and attach supporting materials as necessary.

Title of Course:	**Course Start Date:**	**Course End Date:**	**Lecture Evaluation Date:**
Cold Water/Ice Diving Course	26 February 2010	5 March 2010	2/26/2010

INSTRUCTIONAL MATERIALS, EQUIPMENT & TECHNOLOGIES

(List materials required by the Instructor to present this lesson)

☒ Instructor Guide ☐ CG Addendum ☐ Computer ☒ PowerPoint ☐ Web Access ☒ Classroom
☒ Handouts ☒ Lab Exercise ☐ Role Play/Simulation ☐ Video Tape/DVD (VIDEO)
☐ Computer-Based Training
Other:

STUDENT MATERIALS

(List materials required by the student)

☒ Student Guide ☐ CG Addendum ☐ Desktop Computer ☐ Web Access ☐ SAROPS
Other:

ASSIGNMENTS

(List items required of the students)

☐ Pre-reading ☐ Pre-exercise ☐ Pre-Exam ☐ Pre-Computer-Based Training (CBT)
☐ Post-reading ☐ Exercise ☐ Exam ☐ Laboratory ☐ Computer-Based Training (CBT)
Other:

ASSESSMENT

(List the methods used to assess student learning):

Method of Assessment	System for Grading
Individual and group participation. Students were responsible for planning each dive with instructors adding feedback as needed.	Instructors observed the groups as they prepared and presented their dive plans. There was no formal grading done.

OBSERVATIONS

(TPO/EOs not met, major suggested changes to instruction, etc)

The TPO and all EOs were met.

SUGGESTIONS

(Minor suggested changes, etc.)

None

ADDITIONAL COMMENTS

None

APPENDIX T

Tips for Implementation

Table of Contents

Use the following table to access the tip sheets for the task you want to complete:

Worksheet Number	Title
	No supplemental tip sheets exist to support the Implementation phase at this time.

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APPENDIX U

Job Aids for Evaluation

Table of Contents

Use the following table to access the job aid for the task you want to complete:

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JA – U.1: QA Checklists/CAP Checklists

Purpose	This is a job aid to help you evaluate the instructional design of various instructional materials, detailed in Chapter 5 of the SOP.
Who should use this JA	You should use this job aid if you are a course designer responsible for developing instructional materials (and conducting developmental evaluation), or someone responsible for conducting a Course Assessment (CAP) on an existing course. For either reason, you would use these same checklists. Ideally you are a graduate of the Coast Guard Course Designer Course (CDC) or the SABA Knowledge Service Peak Performance System workshops (previously known as Accomplishment-Based Curriculum Development (ABCD) workshops). .
When you should use this JA	Use this job aid <u>after</u> instructional materials are developed, and received technical accuracy review, or Use this job aid when a CAP has been tasked or existing course due for triennial review. Ideally, course developers should use these checklists as a guide DURING their development efforts so they are developing materials to the instructional design standards that materials will be reviewed against during developmental evaluation.
How to use this JA	Complete the checklist in its entirety, as much as applicable, for each of the instructional elements developed for a course. No particular sequence needs to be followed.

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JA – U.2: Classroom Observation Checklist

APPENDIX V

Worksheets for Evaluation

Table of Contents

These worksheets are designed to work in concert with the Design phase job aids presented in *Appendix V*. Use the following listing to access the worksheet for the task you want to complete.

Worksheet Number	Title
WS-V.1.A	CAP Checklist – Terminal Performance Objectives
WS-V.1.B	CAP Checklist – Performance Tests
WS-V.1.C	CAP Checklist – Job Aids
WS-V.1.D	CAP Checklist – Instructor Guides
WS-V.1.E	CAP Checklist – Student Materials (SG/Workbook)
WS-V.1.F	CAP Checklist – Instructional Media (PPTs)
WS-V.2	Classroom Observation Checklist

Worksheet Access

Samples of the worksheets are included in this appendix. Refer to the *SOP Downloads* page on TRACEN Petaluma's internet website for the most recent and usable copies of all worksheets and templates:
http://www.uscg.mil/hq/cg1/TracenPetaluma/SOP/default.asp

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WS-V.1.A: CAP Checklist – Terminal Performance Objectives

WS-V.1.A	CAP Checklist – Terminal Performance Objectives					
Course						
School				Date		
Evaluator						
Criteria		Meets Standard	Needs Improvement	Missing	Not Applicable	Notes
1. Rating performance qualifications (RPQs) or job-task analysis (JTA) is current.						
2. TPO states the behavior (verb and output produced) as a result of successful completion of the task.						
3. TPO includes, as appropriate: • Conditions that match as closely as practical the conditions found on the job? • Cue or cues that signal the performer to act? • Tools and equipment used to execute the task? • References, job aids, and assistance used to execute the task? • A range of conditions typically found on the job? • Any restrictions placed on the execution or its environment?						
4. TPO's, as appropriate: • Match the standards expected on the job? • Avoid words open to varying interpretation? • List only the criteria that separate acceptable performance from unacceptable? • List the observable characteristics of the task output? • List the observable steps if the procedure is part of the skill check (i.e. performance test)?						
5. The TPO in the curriculum outline states, as closely as practical, the actual task output, conditions, and standards as expected for the tasks to be performed on the job.						
6. The verb, or expected level of performance, asked of in the TPO is not repeated in the EO's.						
7. TPO's do not have TWO performances.						

WS_V.1.A: CAP Checklist-TPOs

Page 1 of 2

WS-V.1.A: CAP Checklist – Terminal Performance Objectives, Continued

WS-V.1.A	CAP Checklist – Terminal Performance Objectives		
Course			
School		Date	
Evaluator			
General comments about overall quality/review of Terminal Performance Objectives.			

WS-V.1.B: CAP Checklist – Performance Tests

WS-V.1.B	CAP Checklist – Performance Tests				
Course					
School		Date			
Evaluator					
OVERALL ASSESSMENT					
Enter PT/TPO Number	List each Performance Test for this course in the blocks below and provide an overall assessment based on the results of your completed evaluation. Note: Add lines as necessary to allow listing of each PT.	Meets Standard	Needs Improvement	Missing	

WS-V.1.B: CAP Checklist – Performance Tests, Continued

WS-V.1.B	CAP Checklist – Performance Tests					
Course						
School				Date		
Evaluator						
Criteria		Meets Standard	Needs Improvement	Missing	Not Applicable	Notes
1. A PT exists for each TPO in the curriculum outline.						
2. The performance test is both related to the job and describes a typical event as it might occur on the job.						
3. Scenarios to support the PT reflect realistic on-the-job situations.						
4. Safety considerations for task performance have been identified.						
5. Directions to the Instructor/Evaluator are provided.						
6. Directions to the Student are provided.						
7. Instructions for the PT include the following categories of information, as appropriate: • Scheduling • Condition statement communicating the setting that will be provided to the student (assistance allowed, tools and references allowed) • Standards statement written to where the evaluator/student can understand to what level they must complete the task? Equipment and resources required for checking the performance? • Remedial procedures to assign to the performer based on specific errors in performance?						
8. Procedures are listed with a "GO" or "NO GO" option (if procedure as well as an output is a concern for performing to standards).						

WS-V.1.B: CAP Checklist – Performance Tests, Continued

WS-V.1.B	CAP Checklist – Performance Tests					
Course						
School				Date		
Evaluator						
Criteria	Meets Standard	Needs Improvement	Missing	Not Applicable	Notes	
9. PT describes precisely each characteristic required for successful task completion (Process and/or Product requirements).						
10. Space provided on PT for students name, date, and record of student's performance / attempt.						
11. Instructions for scoring of the PT are included (within package, or for each PT).						
12. The main verb is in present tense (for each EO).						
13. If necessary, an answer key is included that shows the required task output (in Instructor PT booklet, or Appendix to IG).						
General comments about overall quality/review of Performance Tests.						

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WS-V.1.C: CAP Checklist – Job Aids

WS-V.1.C	CAP Checklist – Job Aids			
Course				
School		Date		
Evaluator				
OVERALL ASSESSMENT				
Enter Job Aid Number	List each Job Aid for this course in the blocks below and provide an overall assessment based on the results of your completed evaluation. Note: Add lines as necessary to allow listing of each Job Aid	Meets Standard	Needs Improvement	Missing

WS-V.1.C: CAP Checklist – Job Aids, Continued

WS-V.1.C	CAP Checklist – Job Aids					
Course						
School				Date		
Evaluator						
Criteria		Meets Standard	Needs Improvement	Missing	Not Applicable	Notes
Use the following list to provide a final job aid assessment overview. This section has been designed to guide the user through a step-by-step procedure for reviewing a job aid. Refer to USCG Training System Standard of Operating Procedures (SOP) Vol. 4 Job Aids.						
1. Is there a job aid analysis on file for each TPO?						
2. If appropriate, Job Aid developed according to the results of a JTA or FEA (with indications for no training, introductory training, or extensive training required).						
3. Feedback and "owner" contact information has been provided in the Job Aid (e.g., who is responsible for maintaining the Job Aid and making revisions to it so it continues to accurately reflect changing qualification factors, policies, and/or procedures).						
Development of Job Aid: Content / Structure						
4. Job Aid edited for Content (verify with SMS): a. Technically correct b. Complete c. No extraneous information included d. All context information included e. Provides stimulus/response cues.						
5. Format is appropriate for its use, environment, and audience? (pg 8 of Job Aid SOP)						
6. Steps are small enough?						
7. Explanations are to the left of illustrations?						
8. It tells the user "when" to use before "how" to use?						

WS-V.1.C: CAP Checklist – Job Aids, Continued

WS-V.1.C	CAP Checklist – Job Aids					
Course						
School				Date		
Evaluator						
Criteria		Meets Standard	Needs Improvement	Missing	Not Applicable	Notes
9. There is sufficient white space?						
10. Critical information is highlighted or set apart?						
11. Decision Tables are presented in boxes?						
12. Steps are numbered for sequence?						
13. Language: • Is simple, clear and appropriate for the user? • Active voice is consistently used (the doer of the subject comes first in the sentence)? • Sentences are short and concise? • Acronyms used are defined at the first use, or are listed in one place as an appendix or in the front of the Job Aid? • Negative words are highlighted?						
Format of Job Aids						
14. Text style consistent						
15. Tells the performer exactly WHEN to do the task/step (behavior)?						
16. Tells the performer exactly WHAT to do (not "about" the behavior, but what the behavior "IS")?						
17. Job Aid is in the correct sequence the steps should be performed.						
18. Increment "size" of each step is not too large (students can remember the step long enough to DO the behavior).						
19. Present tense is used for behaviors (steps).						

WS-V.1.C: CAP Checklist – Job Aids, Continued

WS-V.1.C	CAP Checklist – Job Aids					
Course						
School				Date		
Evaluator						
Criteria		Meets Standard	Needs Improvement	Missing	Not Applicable	Notes
20. Format is correct for the task/step (decision table, algorithm for discrimination; cookbook for sequences, etc)?						
21. Defines "soft" terms (terms open to wide interpretation such as: few, understand, appreciate, activate, and manage).						
22. Contains only relevant information to the job performance (omits large amounts of "subject matter," "whys," and "theory," anything could obscure the "when's" and "what's").						
23. "Critical" information is highlighted (use of graphics, type-face, and boxes).						
24. Information needed to perform the task/step is in the "same" place.						
25. Sufficient examples/non examples are provided.						
General comments about overall quality/review of Job Aids.						

WS-V.1.D: CAP Checklist – Instructor Guides

WS-V.1.D	CAP Checklist – Instructor Guides		
Course			
School		Date	
Evaluator			

OVERALL ASSESSMENT

List each Instructor Guide for this course in the blocks below and provide an overall assessment based on the results of your completed evaluation.

Unit	Lesson	Meets Standard	Needs Improvement	Missing

WS-V.1.D: CAP Checklist – Instructor Guides, Continued

WS-V.1.D	CAP Checklist – Instructor Guides					
Course						
School				Date		
Evaluator						
Criteria		Meets Standard	Needs Improvement	Missing	Not Applicable	Notes
Overall Structure						
1. Cover Page: • Identifies the Course Title • Rate/School Logo is used • Version Date						
2. IG is developed using the IG Template						

3. No matter the format, IG contains the same basic elements that are outlined in SOP Vol 5: Resident Instruction, including:
• Cover Page
• About this Course, including:
  • Source
  • Instructional Settings
  • Class Size
  • Location
  • Course Length
  • Security Classification
• Table of Contents
• Course Overview, including:
  • Course Contents (units)
  • Performance Evaluations
  • Safety
  • Situational Awareness
  • Course Map
• Unit Overview (outlining lessons within that unit, and unit map)
• Lesson(s)						

WS-V.1.D: CAP Checklist – Instructor Guides, Continued

WS-V.1.D	CAP Checklist – Instructor Guides					
Course						
School				Date		
Evaluator						
Criteria		Meets Standard	Needs Improvement	Missing	Not Applicable	Notes
4. Within the IG, a lesson plan is created for each Terminal Performance Objective (TPO), or logically grouped TPO's?						
5. Time breakdown (of some format) is used to show the time allotted for each instructional activity within the lessons.						
6. Terminal Performance Objectives match the Curriculum Outline and references the applicable RPQ's?						
7. IG is well-organized and presents the information in a logical sequence and a predetermined order of contents.						
8. PowerPoint (PP): There is reference to the name of the presentation (if any) used to supplement delivery of the lesson.						
9. Content and "talking points" made in the PP notes pages are **NOT** duplicated in IG.						
10. The lesson plan is developed as a "job aid" on how to facilitate the learning and administer the PT.						
11. Provides detailed guidance to the instructor on how to most efficiently deliver information to students which results in effective transfer of skills and knowledge						
12. Cues provided to the instructor on when and how to use instructional materials, training aids, job aids, special tactics and PT?						

WS-V.1.D: CAP Checklist – Instructor Guides, Continued

WS-V.1.D	CAP Checklist – Instructor Guides					
Course						
School				Date		
Evaluator						
Criteria		Meets Standard	Needs Improvement	Missing	Not Applicable	Notes
13. IG is written insufficient detail so that the new instructor will be able to follow it as easy as an experienced instructor so as to not omit key points?						
"Lesson Plan"						
14. Each **lesson plan (LP)** is based on the course design blueprint or course map produced during the Design phase.						
15. LP provides the specific direction to the instructor on how to guide instruction on each particular terminal performance objective.						
16. Each performance-based lesson consist of the following components: • Introduction • Content Delivery (or presentation) • Demonstration (or examples) • Practice activities and feedback • Assessment • Summary and Review • Any supporting materials (*answer keys, homework, etc*)						
17. **Text**: • Supports the accomplishment of the TPO and EO as listed under Performance Objectives? • Text is arranged in an order that leads the student systematically and logically to intended conclusion? (following 9-events) • Text is brief and to the point? Contains current and essential information?						

WS-V.1.D: CAP Checklist – Instructor Guides, Continued

WS-V.1.D	CAP Checklist – Instructor Guides					
Course						
School				Date		
Evaluator						
Criteria	Meets Standard	Needs Improvement	Missing	Not Applicable	Notes	
18. IG is NOT an exact replication of the student guide, textbooks, or technical manuals that the students are using in class.						
19. The **demonstration** in each lesson plan matches the task analysis?						
20. The demonstration clearly shows or tells the student the stimulus for each response?						
21. (**Practice**): The lesson gives the student an opportunity to apply the skills and knowledge immediately following the demonstration?						
22. Each lesson includes the complete clear direction to the instructor on how to execute each role play, exercise, or practice and what success looks like?						
23. The lesson plan provides an example of the output of the task (performance) with reference to each criterion of quality (what success looks like)?						
24. Level of simulation in each activity or final practice matches the level of simulation on the related PT?						
25. (**Feedback**): Guidance is given to instructor on facilitating feedback sessions and specific areas for improvement?						
26. (**PT**): Includes the complete clear direction to the instructor on how to schedule, administer, and grade each PT and what success looks like?						

WS-V.1.D: CAP Checklist – Instructor Guides, Continued

WS-V.1.D	CAP Checklist – Instructor Guides					
Course						
School				Date		
Evaluator						
Criteria		Meets Standard	Needs Improvement	Missing	Not Applicable	Notes
27. The lesson provides an opportunity for review and to restate/paraphrase the enabling objectives with students to enhance retention of the objectives in the lesson?						
28. **Assignments**: If applicable, in class or after hour assignments are addressed?						
General comments about overall quality/review of Instructor Guides.						

WS-V.1.E: CAP Checklist – Student Materials (SG/Workbook)

WS-V.1.E	CAP Checklist – Student Materials (SG/Workbook)					
Course						
School				Date		
Evaluator						
Criteria		Meets Standard	Needs Improvement	Missing	Not Applicable	Notes
1. Student materials should replicate the actual work environment as much as possible						
2. Student Guide is developed to serve one of the following purposes: a. Full lesson-by-lesson student guide b. Homework/Workbook supplement c. Syllabus Guide						
3. Objectives Block: Lists the terminal performance objective(s) satisfied by the end of that lesson.						
4. Performance Test: Directions are provided to the student on how they will be tested on satisfactory completion of the TPO/task; when and how it will be administered and results of unsatisfactory completion may also be detailed, if not within a PT booklet itself.						
5. Main ideas are identified by "block labels" • If block content (text) continues onto next page, the block label is repeated with the word "continued" added in parentheses at the end						
6. Copyright laws and procedures have been observed? Acknowledgements made as necessary?						
7. Commercial off-the-shelf (COTS) products (e.g. textbooks) are purchased to replace or supplement the student materials being developed						
IF… Full lesson-by-lesson student guide:						
8. Text is not cut-and-paste from existing textbooks/technical manuals, etc.						

WS-V.1.E: CAP Checklist – Student Materials (SG/Workbook), Continued

WS-V.1.E	CAP Checklist – Student Materials (SG/Workbook)					
Course						
School				Date		
Evaluator						
Criteria		Meets Standard	Needs Improvement	Missing	Not Applicable	Notes
9. SG contains other "content" information that will help bridge the gap in learning from prerequisites to new skills.						
10. Text: • Supports the accomplishment of the Terminal Performance Objectives • Text is arranged in an order that leads the student systematically and logically to intended conclusion? • Text is brief and to the point? Contains current and essential information?						
11. Long passages are broken up by making lists of the main idea?						
12. Examples used support text to represent or amplify facts?						
13. Layout follows lesson-by-lesson, as will be delivered to students, following sequenced instructional objectives (aligns with IG)						
14. Practice Exercise *(also for Review Activities if lesson is long enough in duration to integrate all practices into a final review activity)*: • Exercises match those in the lesson plan? Level of simulation in each activity or final practice matches the level of simulation on the related PT? • Detailed instruction provided to the student on how they are to complete the practice; tools/equipment that should be used, grading associated with it, if they must work independently, is collaboration allowed, etc.						

WS-V.1.E: CAP Checklist – Student Materials (SG/Workbook), Continued

WS-V.1.E	CAP Checklist – Student Materials (SG/Workbook)					
Course						
School				Date		
Evaluator						
Criteria	Meets Standard	Needs Improvement	Missing	Not Applicable	Notes	
15. Student Materials: Identifies those materials the student must bring to the learning environment.						
16. Graphics or diagrams are in accordance with good order and discipline, are clear and of good quality, and directly related to the content and task?						
17. Step action tables are used when practical to explain sequence of events (complete job aids are not embedded in SG, but separate)						
18. Lesson Summary: Should be a bulleted list or brief summary of the main points the instructor should review with the student (or explain the review activity that will be conducted) before the assessment is conducted.						
19. Complex regulations have been translated into easy-to-understand text segments and contain only the information essential to the student?						
IF… Homework/Workbook supplement:						
20. Supplemental content is limited to information not found in any other student materials						
21. Developed following sequenced instructional objectives (as delivered in IG).						

WS-V.1.E: CAP Checklist – Student Materials (SG/Workbook), Continued

WS-V.1.E	CAP Checklist – Student Materials (SG/Workbook)					
Course						
School				Date		
Evaluator						
Criteria		Meets Standard	Needs Improvement	Missing	Not Applicable	Notes
22. Assignments are detailed and logically follow the lessons they are designed to support (combined so separate handouts are not used). • *Detailed instruction should be provided to the student on how they are to complete the assignment, tools/equipment that should be used, if they must work independently or if collaboration is allowed, etc.*						
23. Practice Exercises logically follow the lessons they are design to support. • Exercises match those in the lesson plan? • Level of simulation in each activity or final practice matches the level of simulation on the related PT? • Detailed instruction provided to the student on how they are to complete the practice; tools/equipment that should be used, grading associated with it, if they must work independently, is collaboration allowed, etc.						
IF… A Syllabus Guide:						
24. Directs the student to appropriate locations in other media to complete and follow the instruction						
25. Developed following sequenced instructional objectives (as delivered in IG).						

WS_V.1.E: CAP Checklist-Student Materials Page 4 of 5

WS-V.1.E: CAP Checklist – Student Materials (SG/Workbook), Continued

WS-V.1.E	CAP Checklist – Student Materials (SG/Workbook)					
Course						
School				Date		
Evaluator						
Criteria	Meets Standard	Needs Improvement	Missing	Not Applicable	Notes	
General comments about overall quality/review of Student Materials.						

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WS-V.1.F: CAP Checklist – Instructional Media (PPTs)

WS-V.1.F	CAP Checklist – Instructional Media (PPTs)					
Course						
School				Date		
Evaluator						
Criteria		Meets Standard	Needs Improvement	Missing	Not Applicable	Notes
For Developer:						
1.	Media enhances the information in the student materials/instructor guide.					
2.	Media (and images) used relates to the content.					
3.	Images are high fidelity, and not clip-art quality?					
4.	Slide refrains from clutter/image overload.					
5.	Colors contrast well.					
6.	Appropriate level of vocabulary is used.					
7.	Text is easy to read.					
8.	Media has been checked for spelling and grammar.					
9.	Terms in the media match terms in the student materials/instructor guide.					
10.	Text style consistent (headings, text, etc.). (Slide Master)					
11.	Format/layout consistent (spacing).					
12.	Ample white space (margins).					
13.	Font size large enough to be seen by all (at least 24 point for projected media).					
14.	Information bulleted using key words and phrases.					
15.	Media enhances the information in the student materials/instructor guide.					
16.	Media (and images) used relates to the					

WS-V.1.F: CAP Checklist – Instructional Media (PPTs), Continued

WS-V.1.F	CAP Checklist – Instructional Media (PPTs)					
Course						
School				Date		
Evaluator						
Criteria	Meets Standard	Needs Improvement	Missing	Not Applicable	Notes	
content.						
17. 6x6 rule: No more than six words a line and six lines per visual used.						
18. Layout consistent throughout the presentation. (Slide Master)						
19. Sounds/Animation within presentation (not distracting, and are appropriate).						
20. Supplemental "talk about" information for instructor is included in the Notes page for the appropriate slide.						
For Reviewer/Approver:						
21. Upon approval, Master-copy of PowerPoint presentation is "locked" with a password. • Enter a password to modify (not one to open, anyone should be able to open but it prevents schools from making modifications to PP). Entering one to modify allows anyone to open a "read only" version.						
22. Clear direction is provided to instructor in IG on delivery of media for lesson (IG should not duplicate information on PP or in notes pages)						
23. PowerPoint is printed with Notes page option, to show supplemental information and "talking points" for instructor.						
General comments about overall quality/review of Instructional Media.						

WS-V.2: Classroom Observation Checklist

WS-V.2	Classroom Observation Checklist		
Version: September 2012			
Course:		Class #:	
Date:		Bldg/Room:	
Lesson:			
TPO (s) Observed:			
Number of instructors IAW Curriculum Outline:			
Number of instructor observed			
Number of students in class			
Instructor to student ratio		Too Many	Too Few	Just Right
Observation Start Time:		Observation End Time:	
Overall Comments:			
Evaluator Signature:			

WS-V.2: Classroom Observation Checklist, Continued

WS-V.2	Classroom Observation Checklist	
Lesson:		
Characteristic to be Observed:		**Feedback:**
Delivery		
1	Times of events match instructor guide (IG) / lesson plan (LP)?	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
2	Terminal Performance Objective matches throughout all lesson materials?	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
3	Instructor follows the IG and delivery of lesson, as designed?	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
4	Instructor does not add extra or "nice to know" information into lesson (not prescribed in IG)?	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
Instructor Guide (IG)		
5	IG acts as a job aid for how to facilitate the learning process during delivery of the lesson?	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
6	IG provides cues to the instructor about when & how to use materials, training aids, job aids, special tactics, & PT	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
7	IG (or supporting documents which it clearly makes reference to) is written in sufficient detail, so instructor will not omit key points	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		

WS-V.2: Classroom Observation Checklist, Continued

WS-V.2	Classroom Observation Checklist	
Lesson:		
Characteristic to be Observed:		**Feedback:**
8	IG/LP includes classroom prep requirements, such as: ❑ How to reserve classroom ❑ Tools/Equip & where to get them ❑ How to set up the classroom ❑ Pre-work required of students & how to make the assignment ❑ Safety precautions & arrangements ❑ Other (specify): Student materials needed	
Comments/Recommendations:		
9	Instructors follow directions in IG, practice exercises, & PT	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
10	IG provides an example of the output of the task with reference to each criterion of quality – and students have reference so they are aware of that same criterion.	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
11	**Demonstration** shows and/or tells students the stimulus or stimuli for each behavioral response, and the correct procedure (if applicable) for performance of that task.	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
12	IG includes sufficient detail for the instructor on how to deliver the Demonstration.	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
13	Instructor provides the necessary "content" during the demonstration to ensure students have the information necessary before beginning their practice.	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		

WS-V.2: Classroom Observation Checklist, Continued

WS-V.2	Classroom Observation Checklist	
Lesson:		
Characteristic to be Observed:		**Feedback:**
14	IG gives students opportunity to apply skills & knowledge immediately following demonstration (**practice**)?	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
15	Appropriate amount of practice time and exercises are provided to students to ensure proficiency of task before assessed.	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
Instructional Media		
16	Media shown in class matches media referenced to in IG, and has not been altered from originally designed version.	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
17	Media supports instruction from both audio & video perspectives	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
18	Size of media images are sufficient to be seen throughout the classroom	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
19	Layout of media is consistent throughout the lesson	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
Job Aids		
20	Job aid is appropriate for its use, environment, & audience	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		

WS_V.1.C: CAP Checklist-Job Aids Page **4** of **7**

WS-V.2: Classroom Observation Checklist, Continued

WS-V.2	Classroom Observation Checklist	
Lesson:		
Characteristic to be Observed:		**Feedback:**
21	Students use the job aid as they would on the job for the given performance	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
Student Materials		
22	Students use materials that they would have on the job (tech manuals, MPC's, etc)	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
23	Text in Student Guide is not a cut and paste of already existing student references they would have on the job	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
24	Text in SG is brief & to the point	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
25	Student materials provide necessary information when other materials/textbooks/tech manuals do not exist	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
26	Exercises/ activities or assignments in Student Materials match those in the IG.	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
Performance Test		
27	PT for each task (TPO) is included within IG.	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		

WS_V.1.C: CAP Checklist-Job Aids

Page **5** of **7**

WS-V.2: Classroom Observation Checklist, Continued

WS-V.2	Classroom Observation Checklist	
Lesson:		
Characteristic to be Observed:		**Feedback:**
28	Students are provided the Performance Test Checklists (aware of standards/criterion for evaluation) within student materials or in separate PT Booklet	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
29	Instructors actively observe student practice & give informative feedback based on observations & conclusions IAW task standards	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
30	Instructors administer PT to each student (1:1 ratio, unless otherwise noted)	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
31	PT contains no more & no less cues than will be present on the job	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
32	Instructors evaluate students based on precise characteristics that meet the criteria of the task's output as defined on the PT.	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
33	Each characteristic on Performance Test Checklist (PTC) is stated so that performance to standards clearly results in "Yes" or "No" being checked	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
34	If PT is concerned with a procedure as well as an output, each step is: ❑ Numbered & listed on PTC ❑ Described precisely as one would observe performance to standards	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		

WS-V.2: Classroom Observation Checklist, Continued

WS-V.2	Classroom Observation Checklist	
Lesson:		
Characteristic to be Observed:		**Feedback:**
35	Instructor evaluates student performance using the PTC, and documents and provides feedback on student assessment record.	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
36	Other (specify)	☐ Go ☐ No-Go ☐ N/A ☐ N/O
Comments/Recommendations:		
Additional Comments:		
Recommendations:		

WS_V.1.C: CAP Checklist-Job Aids

Page **7** of **7**

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APPENDIX W

Additional Examples for Evaluation

Table of Contents

Example Number	Title
	No additional examples exist to support Evaluation phase at this time.

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APPENDIX X

Tip Sheets for Evaluation

Table of Contents

Use the following table to access the Tip Sheets for the task you want to complete:

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Tip – X.1: Kirkpatrick's Four Levels of Evaluation

Source: http://www.kirkpatrickpartners.com/OurPhilosophy/tabid/66/Default.aspx

The Kirkpatrick Four Levels™ Evaluation Model

Level 1: Reaction

To what degree participants react favorably to the training

Level 2: Learning

To what degree participants acquire the intended knowledge, skills, attitudes, confidence, and commitment based on their participation in a training event

Level 3: Behavior

To what degree participants apply what they learned during training when they are back on the job

Level 4: Results

To what degree targeted outcomes occur as a result of the training event and subsequent reinforcement

Kirkpatrick Foundational Principles

1. The end is the beginning

Effective training evaluation begins before the program even starts. Don Kirkpatrick says it best on page 26 of *Evaluating Training Programs: The Four Levels* (1st Edition, Berrett-Koehler, 1993):

"Trainers must begin with desired results and then determine what behavior is needed to accomplish them. Then trainers must determine the attitudes, knowledge, and skills that are necessary to bring about the desired behavior(s). The final challenge is to present the training program in a way that enables the participants not only to learn what they need to know but also to react favorably to the program."

It is important that the results are defined in measurable terms, so that all involved can see the ultimate destination of the initiative. Clearly defined results will increase the likelihood that resources will be most effectively and efficiently used to accomplish the mission.

Attempting to apply the four levels after a program has been developed and delivered makes it difficult, if not impossible, to create significant training value. All four levels need to be considered at every step in the program design, execution, and measurement.

Tip – X.1: Kirkpatrick's Four Levels of Evaluation, Continued

2. Return on Expectations (ROE) is the ultimate indicator of value

When executives ask for new training, many learning professionals retreat to their departments and start designing and developing suitable programs. While a cursory needs assessment may be conducted, it is rarely taken to the point that expectations of the training contribution to an overall business initiative are completely clear.

Stakeholder expectations define the value that training professionals are responsible for delivering. Learning professionals must ask the stakeholders questions to clarify and refine their expectations on all four Kirkpatrick levels, starting with Level 4 Results. This is a negotiation process in which the training professional makes sure that the expectations are satisfying to the stakeholder, and realistic to achieve with the resources available.

Once stakeholder expectations are clear, learning professionals then need to convert those typically general wants into observable, measurable success outcomes by asking the question, "What will success look like to you?" Those outcomes then become the Level 4 Results; the targets to which you can sharply focus your collective efforts to accomplish return on expectations.

3. Business partnership is necessary to bring about positive ROE

Research has validated that training events in and of themselves typically produce about 15% on-the-job application. To increase application and therefore program results, additional actions need to happen before and after formal training. Historically, the role of learning professionals has been Levels 1 and 2, or just the training event. Not surprisingly, this is why many learning professionals spend almost all of their time there.

The production of ROE, however, requires a strong Level 3 execution plan. Therefore, not only is it critical to call up on business partners to help identify what success will look like, but also to design a cooperative effort throughout the learning and performance processes in order to maximize results.

Before training, learning professionals need to partner with supervisors and managers to prepare participants for training. Even more critical is the role of the supervisor or manager after the training. They are the key people to reinforce newly learned knowledge and skills through support and accountability. The degree to which this reinforcement and coaching happens directly correlates to improved performance and positive outcomes

4. Value must be created before it can be demonstrated

Research suggests that as much as 90% of training resources are spent on the design, development, and delivery of training events that yield 15% on-the-job application (Brinkerhoff, 2006). Reinforcement that occurs after the training event produces the highest level of learning effectiveness, followed by activities that occur before the learning event.

Tip – X.1: Kirkpatrick's Four Levels of Evaluation, Continued

Currently learning professionals are putting most of their resources into the part of the training process that produces the lowest level of business results. They are spending relatively little time in the pre-training and follow-up activities that translate into the positive behavior change and subsequent results (Levels 3 and 4) that organizations seek.

Formal training is the foundation of performance and results. To create ultimate value and ROE, however, strong attention must be given to Level 3 activities. To create maximum value within their organizations, it is therefore essential that learning professionals redefine their roles and extend their expertise, involvement, and influence into Levels 3 and 4.

5. A compelling chain of evidence demonstrates your bottom line value

The training industry is on trial, accused by business leaders of consuming resources in excess of the value delivered to the organization.

Following the Kirkpatrick Foundational Principles and using the four levels will create a chain of evidence showing the business value of the entire business partnership effort. It consists of quantitative and qualitative data that sequentially connect the four levels and show the ultimate contribution of learning and reinforcement to the business. When workplace learning professionals work in concert with their key business partners, this chain of evidence supports the partnership effort and shows the business value of working as a team to accomplish the overall mission.

The chain of evidence serves to unify the learning and business functions, not isolate training or set it apart. This unity is critical for Level 3 execution, where business value is produced.

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APPENDIX Y

Worksheets for Course Maintenance

Table of Contents

These worksheets are designed to work in concert with the information presented in Chapter 8. There is not a specific job aid on how to complete this worksheet, as local procedures will dictate how your training command wishes to use this form in the course maintenance process.

The following worksheet has been provided to you for requesting updates or revisions to existing courses.

Number	Title
WS-Y.1	Curriculum Change Form

Worksheet Access

Samples of the worksheets are included in this appendix. Refer to the *SOP Downloads (Word Version)* page on TRACEN Petaluma's internet website for the most recent and usable copies of all Worksheets and Templates: http://www.uscg.mil/hq/cg1/TracenPetaluma/SOP/default.asp

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WS-Y.1: Curriculum Change Form

WS-Y.1 CURRICULUM CHANGE NOTIFICATION

(ORIGINATOR COMPLETE BLOCKS 1 THROUGH 8 ONLY)

1. Originator's Name:	2. Course Name:	3. Request Date:

4. Type of Change:

☐ MINOR CHANGE	☐ TECHNICAL CHANGE	☐ MAJOR CHANGE
A change to correct editorial and typographical errors, teachability, safety, or urgent program manager-issued subjects.	Any change to tactical or training-unique equipment or documentation originating in the program that affects curriculum. A technical change may or may not affect individual lesson objectives, but DOES NOT affect terminal performance objectives, course length, or resources.	A major change to any course terminal performance objective, an increase in course length, or any change that requires additional resources.

5. Instructional Materials Affected (Check all that are known to be affected):

☐ CURRICULUM OUTLINE ☐ JOB AID ☐ CRITERION TEST

☐ STUDENT GUIDE ☐ INSTRUCTOR GUIDE ☐ POWERPOINT

☐ OTHER (SPECIFY) _____

6. Describe what functionality or curriculum and lesson that this CR addresses:

7. Define problem or the need for this change: (Only one per change notice. Attach additional sheets if necessary)

8. Suggestion, Improvement or Recommendation: (Only one per change notice. Attach additional sheets if necessary)

Review/Approval

9. School Chief Approval ☐YES ☐NO

Signature: **Title :** **Date:**

10. Training Officer / Local ISD or PSB Approval of above change ☐YES ☐NO

Signature: **Title :** **Date:**

Forwarded for Prioritization of ISD Resources

11. Prioritization Process Outcome

☐ ISD Resource Assigned ☐ Priority, but no resource currently available

☐ No resources assigned, with PSB oversight will work with School to address

Signature:

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APPENDIX Z

Job Aids for Training Management

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Use the following table to access the job aid for the task you want to complete:

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JA – Z.1.A-D: How to Evaluate Training System Functions

Purpose

This job aid provides assistance to training managers on how to evaluate the courses and schools they manage. The purpose of this job aid and the standards within are to enhance the quality of training in the Coast Guard and promote excellence within the Coast Guard training system.

Who should use this JA

School chiefs, course chiefs, branch chiefs, training officers, etc. should use this job aid to periodical review the effectiveness of the course under their control. Master Training Specialists, course developers, and instructors may also find value in using this job aid to assist in accessing the readiness of their respective schoolhouses.

When you should use this JA

Use this job aid after a course has been piloted and implemented and periodically thereafter. Upon taking over a new billet, training managers should use this job aid as a self-assessment early in their tour to determine where to focus improvement efforts during their tenure.

How to use this JA

Follow the list item by item; determining if there is supporting evidence to support each standard. If there it is found that the school/course doesn't meet Coast Guard training standards, training managers should identify the discrepancy. One checklist for each course may be necessary, or discrepancies may be consolidated onto one master list. Then training managers should list:

- The standard number of each non-compliant standard
- The nature of the problem
- The proposed corrective action
- An assignment for completion
- An estimated completion date

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JA – Z.1.A: How to Evaluate Training System Functions: Administration

TRAINING STANDARDS

Section 1: Administration

These standards are intended to ensure the schoolhouse organizes, staffs, and manages the training process.

Section 1 – Administration				
Item	**Standard**	**Y**	**N**	**Notes**
1.1	The school assesses risks and prescribes the use of safety equipment and procedures to mitigate those risks when conducting inherently dangerous training.	❑	❑	
1.2	Training equipment is properly maintained in accordance with COMDT standards or manufacturer's guidelines.	❑	❑	
1.3	The school suspends or discontinues training activities that become hazardous due to exigent circumstances. (The intent of this standard is to address such things as inclement or adverse weather conditions, accidents, equipment failure, power outage, etc.)	❑	❑	
1.4	The school's courses comply with applicable licensing and copyright laws	❑	❑	
1.5	The school maintains records for each offering of the training program. At a minimum each record will include: .01 - Curriculum content (syllabus, instructor guide, curriculum outline, and other training materials); .02 - A listing of all instructors and other instructional personnel indicating the actual class in which each presented or participated; .03 - Inclusive dates the program is conducted and actual dates and times when each segment of training occurs; .04 - Roster of students in each convening; and .05 – Performance Tests and answer keys.	❑	❑	

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JA – Z.1.A: How to Evaluate Training System Functions: Administration, Continued

Section 1 – Administration				
Item	**Standard**	**Y**	**N**	**Notes**
1.6	The school maintains records for each student attending the program. At a minimum each record will include: .01- Documentation that verifies the student met all prerequisites for attending the training course; .02 - A complete record of the students' training evaluations (grades, scores, final results); .03 - Documentation of any exceptions or waivers requested or granted to the student; and .04 - Documentation that verifies the student successfully completes the training course. .05 - If electronic records are maintained, there are procedures for security, including access, storage of files, backup, and equipment.	❑	❑	
1.7	The school follows procedures for the physical security, management, retention, release, and destruction of training-related records.	❑	❑	
1.8	The school projects and tracks expenditures for the training program.	❑	❑	
1.9	If physical activity is a part of the curriculum, a health screening process is used to ensure students are capable of participating as determined by the schoolhouse.	❑	❑	
1.10	The school provides notification, adjudication, and redress for allegations of student misconduct.	❑	❑	

JA – Z.1.B: How to Evaluate Training System Functions: Staff

TRAINING STANDARDS (CONTINUED)

Section 2: Staff

These standards are intended to ensure training staff receive the training and management oversight necessary to provide effective training.

Section 2 – Staff				
Item	**Standard**	**Y**	**N**	**Notes**
2.1	The schoolhouse provides an orientation to training staff that include: .01 – Training center mission and vision .02 - Course goals and objectives .03 - Code of conduct .04 - Violations and consequences of prohibited conduct .05 - Organizational Structure .06 - Safety rules/regulations and procedures	❑	❑	
2.2	The schoolhouse monitors and mentors newly assigned instructors and shepherds them through the PERJC qualification process.	❑	❑	
2.3	Instructors have attended the Coast Guard's Instructor Development Course and have received their PERJC competency code.	❑	❑	
2.4	The school provides and documents specialized training related to the program.	❑	❑	
2.5	The school ensures instructors maintain current expertise in the subject matter through operational participation, field observation, or specialized training.	❑	❑	
2.6	The school mandates and documents professional development of its instructor staff, either formal or informal, that provides instruction/training in specialty areas in instruction and advanced instructional competencies such as PERJD and PERJI.	❑	❑	

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JA – Z.1.B: How to Evaluate Training System Functions: Staff, Continued

Section 2 – Staff				
Item	**Standard**	**Y**	**N**	**Notes**
2.7	The school uses classroom observations and Instructor Feedback Forms (IFF) as part of supervisory quality checks of instructor preparations, class preparations, and performance.	❑	❑	
2.8	The schoolhouse ensures there is a qualified instructor in the classroom or lab when instructors have not yet attained the PERJC or instruct only occasionally.	❑	❑	

JA – Z.1.C: How to Evaluate Training System Functions: Development

TRAINING STANDARDS (CONTINUED)

Section 3: Development

These standards are standards are intended to ensure training programs are developed, implemented, and reviewed using the Coast Guard Instructional Design Model (or similar industry-recognized systematic approach to training.)

Section 3 – Training development				
Item	**Standard**	**Y**	**N**	**Notes**
3.1	The school's courses were created using the Coast Guard Instructional Design Model or similar industry-recognized, systematic approach to training (includes at least the following concepts: Analysis, Design, Development, Implementation, and Evaluation) such as ABCD.	❑	❑	
3.2	The school uses an archiving system to store and retrieve program and curriculum development documents. The documents associated with each phase of the course development process are maintained with archived course development materials.	❑	❑	
3.3	The school has completed, signed, and current Curriculum Outlines for each of its courses.	❑	❑	
3.4	The school has completed, signed, and current Programs of Instruction (POI) for ACE accreditation for each of its courses.	❑	❑	
3.5	The school has current analysis documents (FEA, OA, JTA, etc.) or tasking memo for each of its courses	❑	❑	
3.6	Students are evaluated on each learning objective. All performance test criteria is referenced to one or more performance objective.	❑	❑	

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JA – Z.1.C: How to Evaluate Training System Functions: Development, Continued

Section 3 – Training development				
Item	**Standard**	**Y**	**N**	**Notes**
3.7	The school uses a Course Assessment Process (CAP) to ensure instructor guides describe learning activities in sufficient detail to ensure consistent delivery of instruction.	❑	❑	
3.8	The school conducts, compiles, and reviews student reaction surveys (Level 1 of the Kirkpatrick model) to identify opportunities to improve the program, instruction, support and administrative elements of the training received.	❑	❑	
3.9	The schoolhouse reviews the results of the program's student assessments (Level 2 of the Kirkpatrick model) to identify gaps in instruction, student materials or deficiencies in performance test construction.	❑	❑	
3.10	The schoolhouse gathers and reviews feedback (Level 3 of the Kirkpatrick model) from graduates and their supervisors to evaluate the effectiveness of the courses.	❑	❑	

JA – Z.1.D: How to Evaluate Training System Functions: Delivery

TRAINING STANDARDS (CONTINUED)

Section 4: Delivery

These standards are standards are intended to ensure processes are established and used to for effective delivery of training.

Section 4 – Training delivery				
Item	**Standard**	**Y**	**N**	**Notes**
4.1	Instructor guides are followed for all instruction conducted in the school.	❑	❑	
4.2	Instructors have access to instructional materials and program-training equipment. Instructors are properly trained in the use of that equipment.	❑	❑	
4.3	Students have access to learning resource materials and program-related equipment and receive training in its proper use.	❑	❑	
4.4	The school has suitable classroom space, labs, simulators, equipment, and materials identified in the curriculum outlines to support its courses.	❑	❑	
4.5	The each of the school's courses provides an orientation to students that include: .01 - Course goals and objectives .02 - Training schedules .03 - Performance test expectations .04 - Fire and emergency procedures .05 - Safety rules and regulations .06 - Code of conduct rules and requirements .07 - Disciplinary procedures	❑	❑	
4.6	The school remediates missed objectives after a student fails a performance test (Except in cases where the student is disenrolled for academic reasons from the training program).	❑	❑	

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