FEMA Course Mapping Tool Technical Assistance Guide

February 1, 2017

Homeland Security

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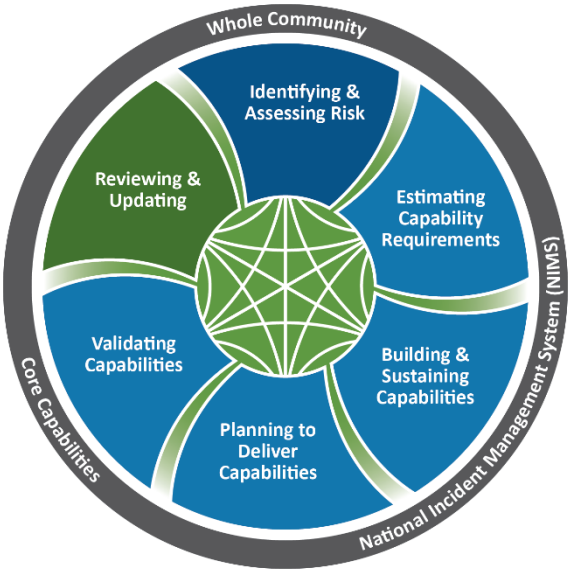
Introduction

The purpose of mapping training courses to the National Preparedness Goal core capabilities is to better integrate training and education within the National Preparedness System. The purpose of this document is to provide the whole community with a standard approach to mapping new courses or those courses due for recertification. By aligning courses to core capabilities, the Federal Emergency Management Agency (FEMA) and its whole community partners can more effectively target their training programming and investments to better meet the capability-specific requirements of the National Preparedness enterprise and ensure that we close capability gaps across all disciplines and workforce proficiency levels.

The Nation's approach to preparedness is grounded by two key pieces of doctrine: the National Preparedness Goal (the Goal) and the National Preparedness System (NPS). The Goal defines what it means for the whole community to be prepared for all types of disasters and emergencies. The NPS describes how the whole community can achieve the Goal across the five preparedness mission areas—Prevention, Protection, Mitigation, Response, and Recovery—by providing a consistent and reliable approach to decision making, resource allocation, and measuring progress towards a more secure and resilient nation. Components of the NPS include:



The National Preparedness Goal

"A secure and resilient Nation with the capabilities required across the whole community to prevent, protect against, mitigate, respond to, and recover from the threats and hazards that pose the greatest risk."

- Identifying and assessing risk;
- Estimating the level of capabilities needed to address those risks;
- Building or sustaining the required levels of capability;
- Developing and implementing plans to deliver those capabilities;
- Validating and monitoring progress; and
- Reviewing and updating efforts to promote continuous improvement.

National preparedness, as defined by the Goal, requires a workforce with the requisite knowledge and skills to address a diverse array of threats and hazards. Whether preventing cyber-attacks, protecting critical infrastructure, or responding to disaster survivors, professionals from a variety of disciplines require training and education that enhances their ability to perform critical missions.

The **National Training and Education System (NTES)** is a combination of programs, tools, and resources required to build and strengthen these knowledge, skills, and abilities across the whole community. By implementing a systematic and coordinated approach consistent with the NPS, the NTES promotes training and education programs that best address priority risks and build needed

capabilities. Through targeted delivery of programming, the NTES maximizes the value of training and education by continuously addressing the evolving competency and capability requirements of communities and organizations.

This document summarizes the core components of the NTES and provides a decision-making framework for the training and education community to better achieve the Goal of a secure and resilient nation.

NTES Overview

Vision

The NTES fosters an integrated and systematic approach for building training and education capacity across the whole community and all five mission areas. Four guiding principles support the achievement of this vision:

- Collect and analyze data on training and education requirements and use that analysis to inform decisions on funding, programming, and course design and delivery;
- Promote individual competency areas to build workforce capacity and ensure continual development of education programming;
- Use training and education to build and sustain capabilities that address a community or organization's priority threats and hazards; and
- Coordinate and collaborate across the whole community to build "Communities of Practice" that share information and resources to address training and education requirements.

Through these principles, NTES enables the whole community to translate training and education needs into viable courses of action that produce successful outcomes and strengthen national preparedness.

Core Capabilities

The National Preparedness Goal Core Capabilities provide a common framework for describing training and education requirements. Organized by mission area, the 32 Core Capabilities define all capabilities that are necessary to prepare the Nation for incidents that pose the greatest risks. The Core Capabilities help organize national preparedness activities and greatly enhance the ability to integrate and coordinate training and education across the preparedness enterprise. Because the Core Capabilities convey a common understanding that is not exclusive to any single government or organization, they can be used by any member of the whole community.

Core Capabilities by Mission Area

Prevention	Protection	Mitigation	Response	Recovery
Planning	Planning	Planning	Planning	Planning
Public Information and Warning	Public Information and Warning	Public Information and Warning	Public Information and Warning	Public Information and Warning
Operational Coordination	Operational Coordination	Operational Coordination	Operational Coordination	Operational Coordination
Forensics and Attribution Intelligence and Information Sharing Interdiction and Disruption Screening, Search, and Detection	Access Control and Identity Verification Cybersecurity Intelligence and Information Sharing Interdiction and Disruption Physical Protective Measures Risk Management for Protection Programs and Activities Screening, Search, and Detection Supply Chain Integrity and Security	Community Resilience Long-Term Vulnerability Reduction Risk and Disaster Resilience Assessment Threats and Hazard Identification	Critical Transportation Environmental Response/Health and Safety Fatality Management Services Fire Management and Suppression Infrastructure Systems Mass Care Services Mass Search and Rescue Operations On-Scene Security and Protection Operational Communications Public and Private Services and Resources Public Health and Medical Services Situational Assessment	Economic Recovery Health and Social Services Housing Infrastructure Systems Natural and Cultural Resources

Planning, Public Information and Warning, and Operational Coordination are core capabilities common to all mission areas.

Basic Mapping Protocol Steps

1. Select the new course or existing course due for recertification course to be mapped to the National Preparedness Goal.
2. Compile the course's Plan of Instruction / Syllabus which must consist of, at a minimum, basic course information such as Course Title, Course Number, Enabling Learning Objectives (ELO), etc. Refer to the Data Input section, Steps 1–11, for the specific requirements.
3. Select and assign specific personnel to form the mapping team, see Mapping Team Composition recommendations below.
4. Appoint a member of the mapping team as the Team Lead, who shall:
    a. Create a new mapping file for the selected course;
    b. Populate all the required fields of the mapping file with basic course information, such as Course Title, Course Description, etc. Refer to the Data Input section, Steps 1–11, for more information;
    c. Distribute the populated mapping file to other team members for data input.
5. Each team member shall then score each ELO based on Bloom's New Taxonomy (included in the mapping tool), select a Core Capability for each ELO, and select a Mission Area for the chosen Core Capability. Refer to the Data Input Section, Steps 12–16, for more detail.
6. After each team member has completed the entire mapping process detailed in the Data Input Section Steps 12–16, the Team Lead shall gather the completed mapping files from all team members and compare responses on:
    a. Bloom's New Taxonomy scoring on knowledge, skill, and attitude;
    b. Selected Core Capabilities; and
    c. Selected Mission Areas.
7. If or when there is disagreement in one or more of the compared fields (Bloom's New Taxonomy scoring, section of Core Capability, and/or selection of Mission Area), the entire mapping team shall discuss their reasoning for their specific selection. The entire team shall take a vote on the proper disposition of the selected data point and a majority rule of the entire team will decide the selected new value to be used.
8. The Team Lead shall then create a master mapping file for the course and ensure the data fields properly reflect the agreed upon values for each of the compared fields.
9. The completed course mapping file shall then be routed through the proper local administrative channels for submission to FEMA for review and comment.
10. If at any time there are technical questions on the mapping tool or mapping process, email FEMA at FEMA-NTES@FEMA.DHS.GOV.

Mapping Administrative Process

Mapping Team Composition

To ensure the highest level of quality in the mapping process, it is recommended that each mapping team consist of at least three people, composed of one instructional system designer (ISD), one course-content subject matter expert, and one project manager. The project manager should be an individual having *intermediate* or *advanced* credentials or formal education in the discipline or broad range of subject-area knowledge pertaining to the courses being evaluated. As an alternative, the project manager can be replaced with an *intermediate* or *advanced* ISD professional.

Excel Calculations

In MS Excel Options - Formulas submenu, if “Workbook Calculation” is not set to Automatic – it causes cells to not automatically calculate when data is entered. Either change the setting to Automatic or press F9 to manually update all fields requiring calculations.

Data Input

Course Descriptive Information

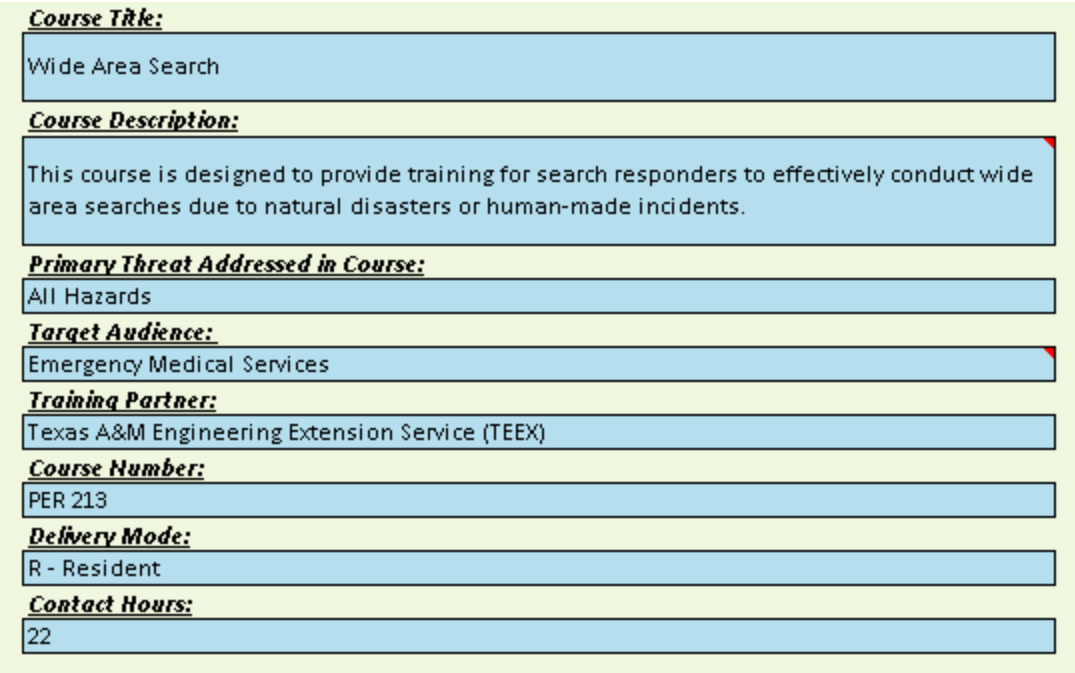
When creating a new mapping file for a new course or existing course to be submitted for re-certification, the following information must be initially entered before distributing to other mapping team members (all fields in blue on the top left corner of the "Input" tab):

Step 1: Course Title

Enter the current or proposed course title.

Step 2: Course Description

Enter the detailed course description. The box will expand to an area larger than what is seen on the screen. This information is vital to determine much of the subsequent information, so be sure to have as much information as possible to allow for proper course assessment.



Step 3: Primary Threat Addressed in Course

This is a drop-down combination box with a baseline set of threats and hazards listed in the *Threat and Hazards Identification and Risk Assessment (THIRA)* and/or the *2011 Strategic National Risk Assessment (SNRA)*. If your desired threat or risk is not in the current list, you will need to add to the list of threats found on the hidden "Threats" tab. Refer to Appendix C to learn how to unhide tabs.

Step 4: Target Audience

This heading is a drop-down combination box with 23 static target audience selections. Select the primary target audience for this course. If your desired audience is unlisted, email FEMA-NTES@FEMA.DHS.GOV for technical assistance.

Step 5: Training Partner

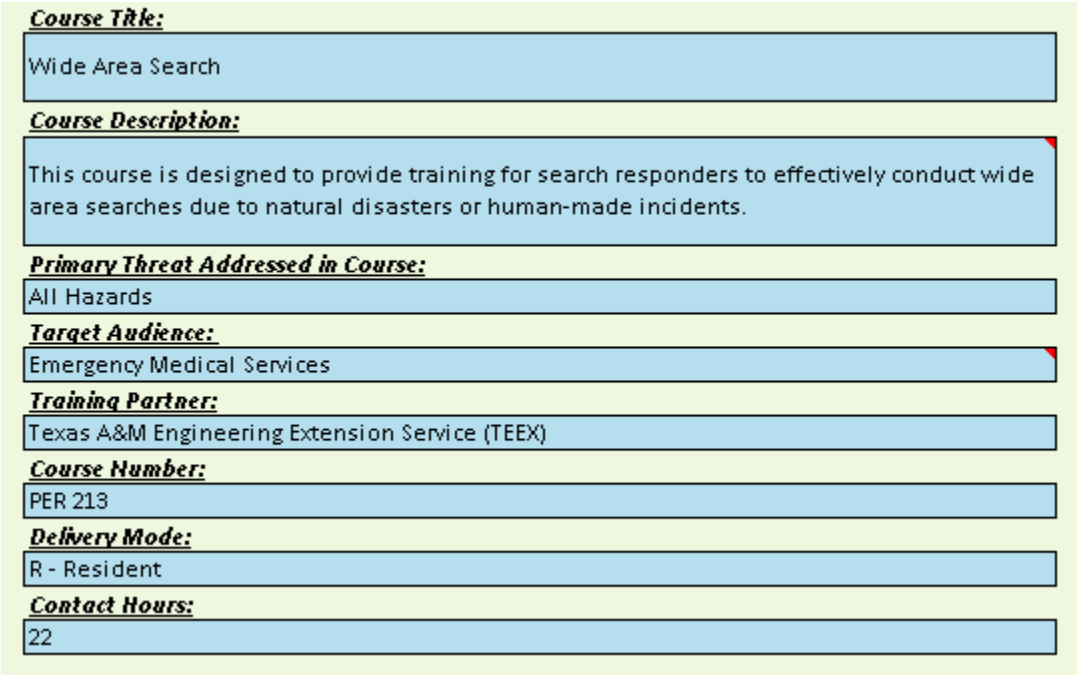
This is heading is a drop-down combination box with a baseline set of training partners. If your training partner name is not in the current list, you will need to add the name to the list of training partners found on the hidden "Training Partners" tab. see Appendix C to learn how to unhide tabs.

Step 6: Course Number

Enter the current number for re-certified courses or proposed course number for new course. numbers.

Step 7: Delivery Mode

This heading is a drop-down combination box with a baseline set of delivery modes. Select the delivery mode to be used for this course.



Step 8: Contact Hours

Enter the number of direct instructional contact with students in hours. This will be compared to the amount of time calculated for each ELO.

ELO #	Module #	Module ELO #	Enabling Learning Objectives (ELO)	Time (hours) 6 min=0.1 hr	Knowledge (0-6 scale)	Skill (0-7 scale)	Attitudes (0-5 scale)	KSA Total (0-18)	ELO Complexity	Core Capability	Misson Area
1	1	1	Define wide area search.	0.60	1	0	0	1	0.60	Mass Search and Rescue Operations	Response
2	1	2	Describe the events that necessitate a wide area search.	0.60	1	1	1	3	1.80	Mass Search and Rescue Operations	Response
3	1	3	Assess safety factors of a wide area search.	0.60	5	0	3	8	4.80	Mass Search and Rescue Operations	Response

Input | Output | Knowledge | Skill | Attitude and Ability | Knowledge Verbs | Skill Verbs | AA Verbs | Core Capabilities Definitions | About the Tool

Step 9: Module Number

Enter the value for the Module of Instruction for this ELO.

Module Enabling Learning Objective Number

This value will automataically update and requires no input.

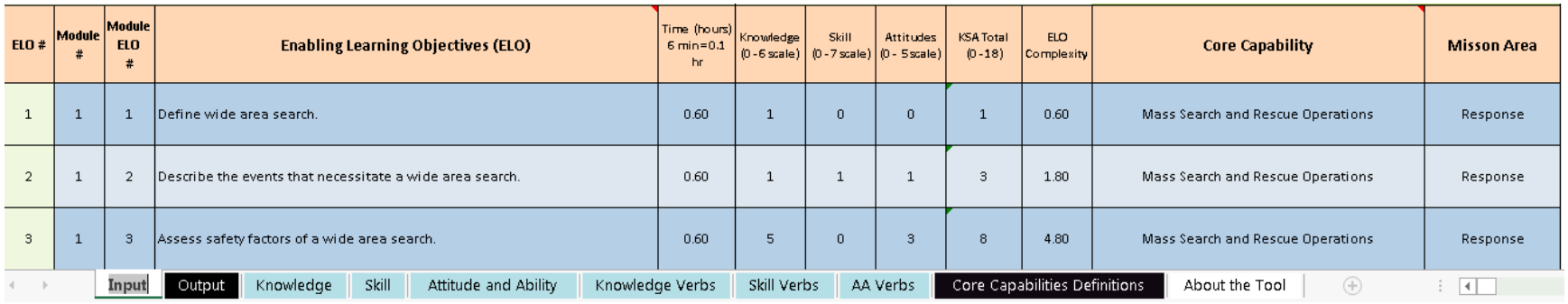
Step 10: Enabling Learning Objective

Enter the specific ELO for the Module Number and Module ELO Number listed to the left on the same line, so the first word is the "action verb" to be assessed via Bloom's New Taxonomy rubrics for knowledge, skill, and attiude. Refer to Steps 12-14 for more detail. If the entire line for the ELO appears red, refer to Appendix D for instructions on how to fix the issue.

Step 11: Time

For each Module of Instruction, using the Time Calculator (see image to the right) input the number of hours, minutes, and number of ELO in the specific Module of Instruction. The Time Caluclator will calculate the average amount of time per ELO to be used in the Time field for that Module of Instruction. Re-do this calulation for each Module of Instruction.

Time Calculator			
Hours	Minutes	# of ELOs	Time / ELO



ELO #	Module #	Module ELO #	Enabling Learning Objectives (ELO)	Time (hours) 6 min=0.1 hr	Knowledge (0-6 scale)	Skill (0-7 scale)	Attitudes (0-5 scale)	KSA Total (0-18)	ELO Complexity	Core Capability	Misson Area
1	1	1	Define wide area search.	0.60	1	0	0	1	0.60	Mass Search and Rescue Operations	Response
2	1	2	Describe the events that necessitate a wide area search.	0.60	1	1	1	3	1.80	Mass Search and Rescue Operations	Response
3	1	3	Assess safety factors of a wide area search.	0.60	5	0	3	8	4.80	Mass Search and Rescue Operations	Response

Step 12: Knowledge – Bloom's New Taxonomy

Once an ELO has been entered into the ELO field (Step 10), the first word will considered the "action verb" and is automatically scored using the Knowledge rubric from Bloom's New Taxonomy. The specific action verb score is assigned via the library of action verbs found on the "Knowledge Verbs" tab. To select the calucalted score, click on the Knowledge cell for the specific ELO. A drop down list of possible scores is given, if only one score is listed, then select the assigned score. However, if there is more than one possible score, the following protocol must be used to choose the correct score:

- Review the entire ELO, Course Description, and Target Audience. The Course Description and Target Audience will provide context to the ELO and based upon this context,
- Select the best score based on the score definitions found in the Knowledge rubric on the "Knowledge" tab.

Step 13: Skill – Bloom's New Taxonomy

Once an ELO has been entered into the ELO field (Step 10), the first word is considered the "action verb" and is automatically scored using the Skill rubric from Bloom's New Taxonomy. The specific action verb score is assigned via library of action verbs found on the "Skill Verbs" tab. To select the calucalted score, click on the Skill cell for the specific ELO. A drop-down list of possible scores is given. If only one score is listed, then select the assigned score. However, if there is more than one possible score, the following protocol must be used to choose the correct score:

- Review the entire ELO, Course Description, and Target Audience. The Course Description and Target Audience provide context to the ELO; considering this context
- Select the best score based on the score definitions found in the Skill rubric on the "Skill" tab.

ELO #	Module #	Module ELO #	Enabling Learning Objectives (ELO)	Time (hours) 6 min=0.1 hr	Knowledge (0-6 scale)	Skill (0-7 scale)	Attitudes (0-5 scale)	KSA Total (0-18)	ELO Complexity	Core Capability	Misson Area
1	1	1	Define wide area search.	0.60	1	0	0	1	0.60	Mass Search and Rescue Operations	Response
2	1	2	Describe the events that necessitate a wide area search.	0.60	1	1	1	3	1.80	Mass Search and Rescue Operations	Response
3	1	3	Assess safety factors of a wide area search.	0.60	5	0	3	8	4.80	Mass Search and Rescue Operations	Response

Input | Output | Knowledge | Skill | Attitude and Ability | Knowledge Verbs | Skill Verbs | AA Verbs | Core Capabilities Definitions | About the Tool

Step 14: Attitudes – Bloom's New Taxonomy

Once an ELO has been entered into the ELO field (Step 10), the first word is considered the "action verb" and is automatically scored using the Attitude and Ability rubric from Bloom's New Taxonomy. The specific action verb score is assigned via library of action verbs found on the "AA Verbs" tab. To select the calucalted score, click on the Attitude cell for the specific ELO. A drop-down list of possible scores is given. If only one score is listed, select the assigned score. However, if there is more than one possible score, the following protocol must be used to choose the correct score:

- Review the entire ELO, Course Description, and Target Audience. The Course Description and Target Audience will provide context to the ELO and based upon this context,
- Select the best score based on the score definitions found in the Attitude rubric on the "Attitudes and Ability" tab.

KSA Total & ELO Complexity

These values will automatically calculate and require no input.

Step 15: Core Capability

This heading is a drop-down combination box with a list of the 32 Core Capabilities listed in the National Preparedness Goal, 2nd Edition. To select the proper Core Capability for the specific ELO, the following protocol must be used:

- Review the entire ELO, Course Description, and Target Audience. The Course Description and Target Audience provide context to the ELO; considering this context
- Use the definitions of each Core Capability from the "Core Capabilities Definitions" tab and select the ***best*** possible match from the list of Core Capabilities based upon the context given by the Course Description and Target Audience.
- If none of the Core Capabilities are a match, then select the "None" option from the drop-down list of the 32 Core Capabilities.

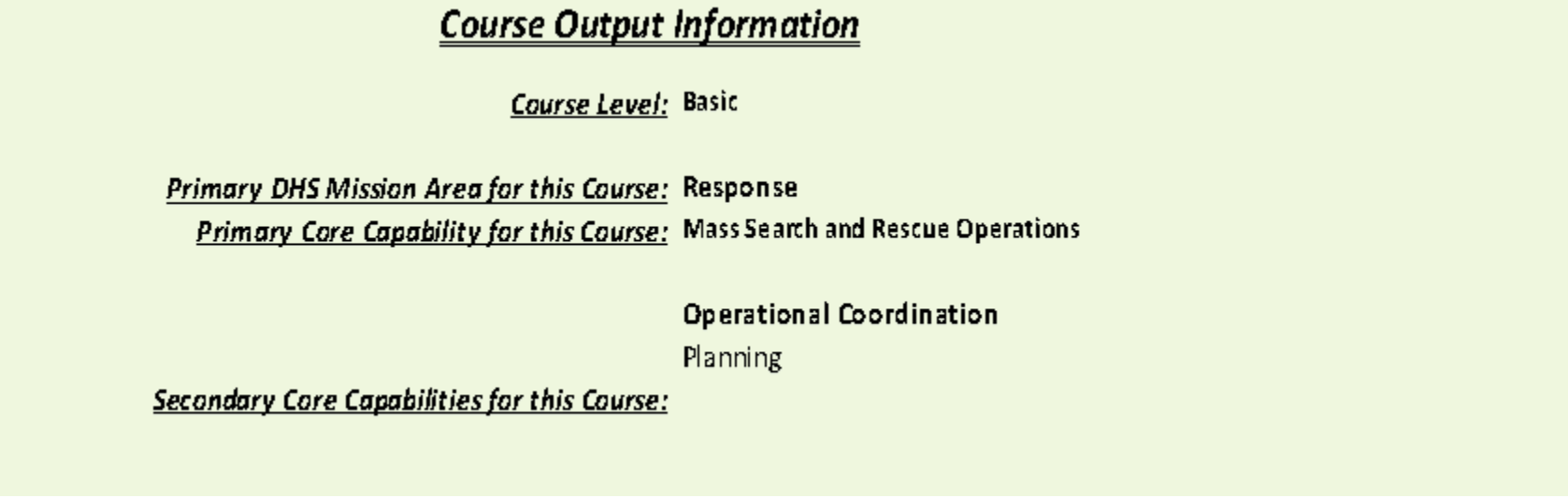
Step 16: Mission Area

This is a drop-down combination box with a list of the Mission Areas that align to the selected Core Capability from Step 15. If more than one Mission Area selection is possible, the following protocol must be used:

- Review the entire ELO, Course Description, and Target Audience. The Course Description and Target Audience provide context to the ELO; considering this context
- Use the definitions of each Core Capability, Mission Area, and their associated Preliminary Targets listed in the "Core Capabilities Definitions" tab and determine which Preiminary Target ***best*** matches the intent of the ELO and select the associated Mission Area.

Data Output

A *Course Output Information* summary box is located on the "Input" tab and just above the data input for the ELOs. The summary box provides information about the course's designated Course Level, Primary DHS Mission Area, and Primary and Secondary Core Capabilites. A more detailed data output on the course is found on the "Output" tab.



The "Output" tab gives the Course Description Information, Course Output Information, a chart of percentage of ELOs by DHS Mission Area, and a chart showing Percentage of ELOs by Core Capability. This is to be used so that course developers can determine how the course is populated across the 32 Core Capabilites.

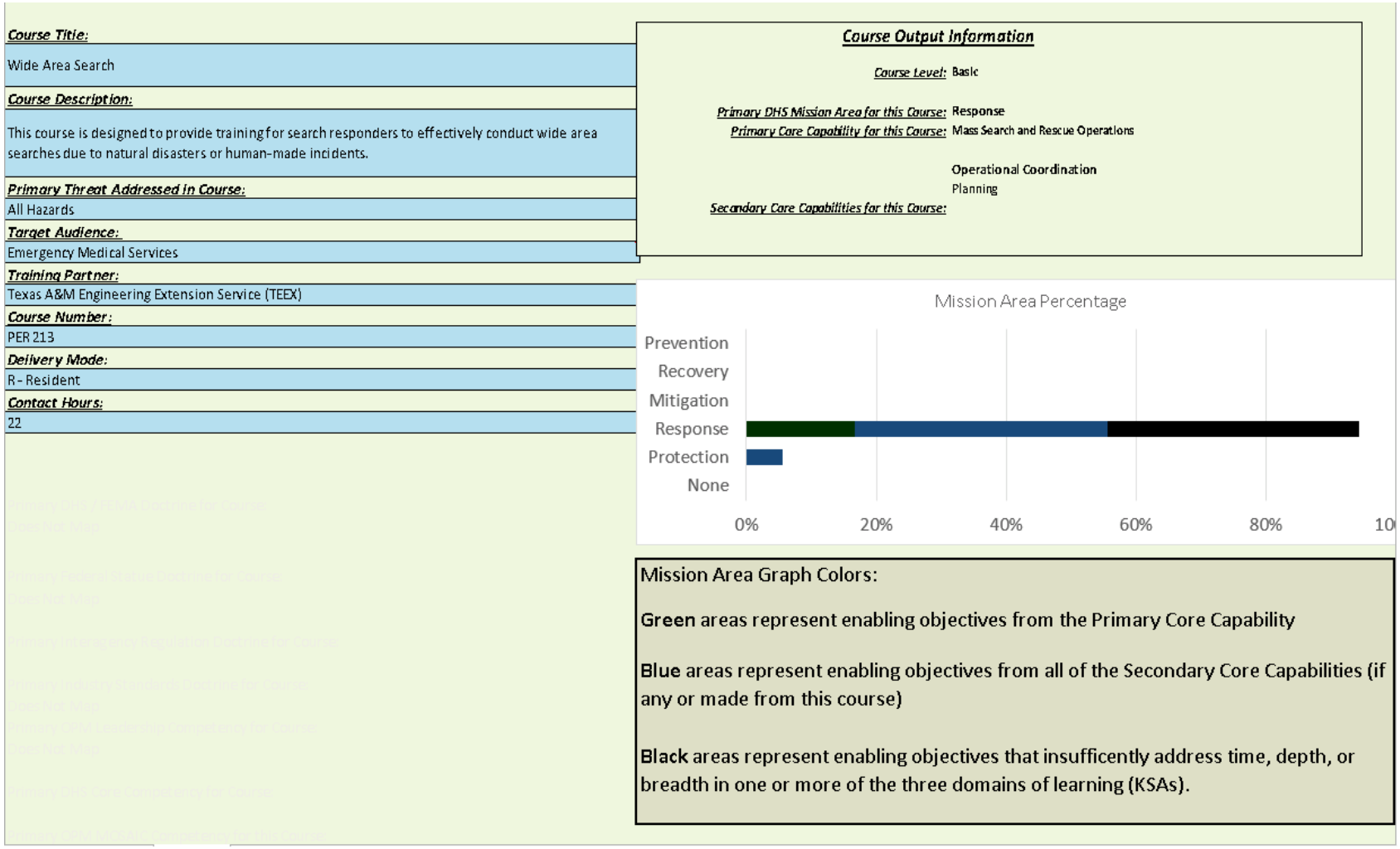


Figure 1: Output Tab – Upper Half

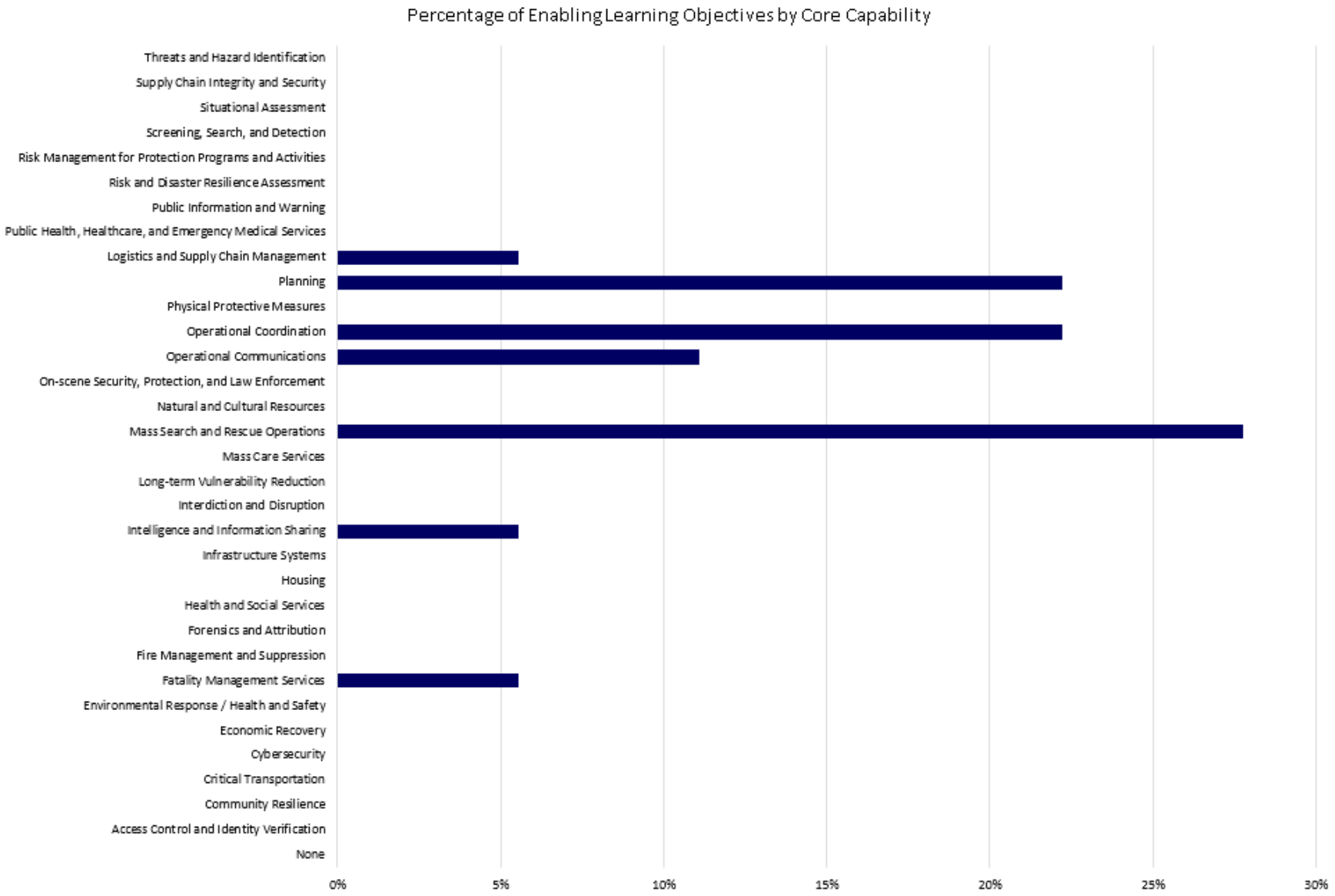
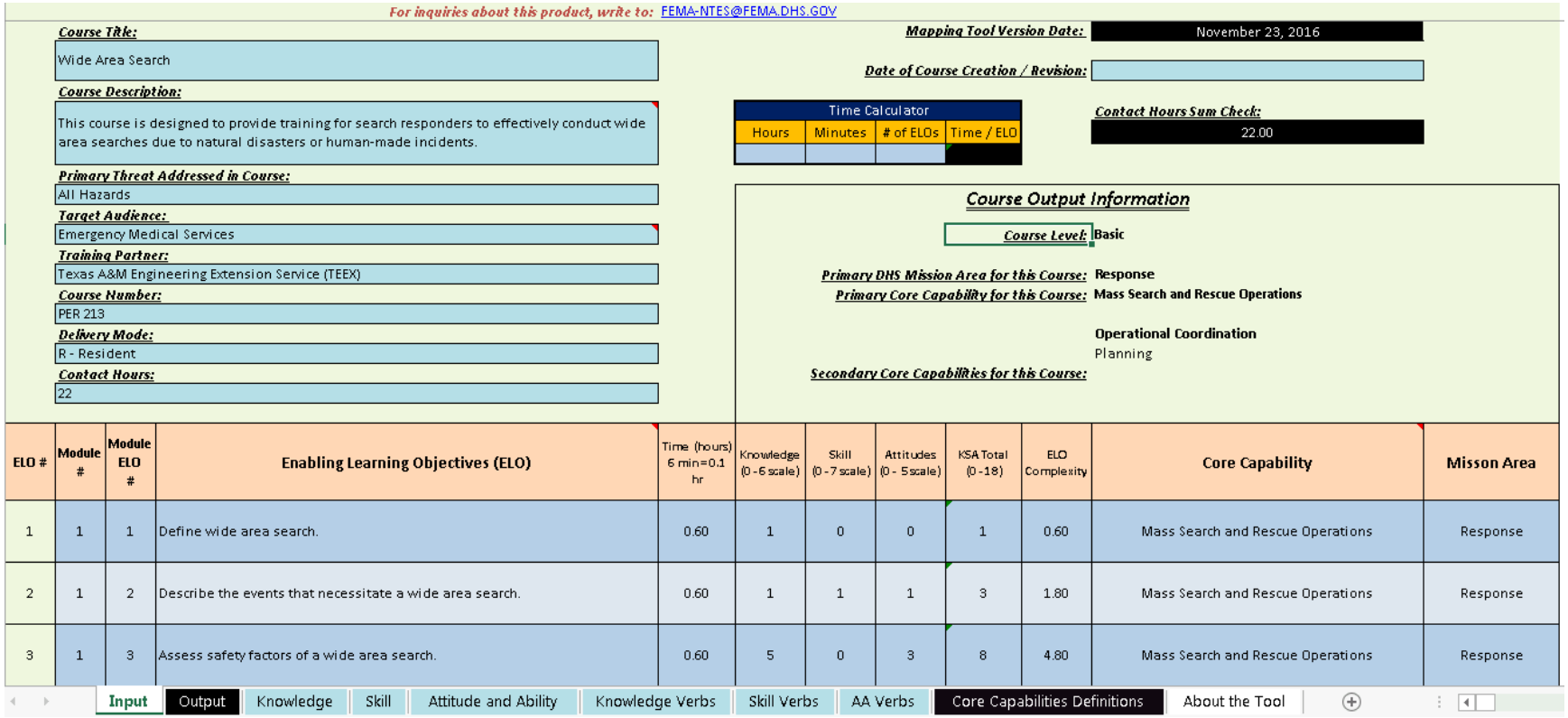


Figure 2: Output Tab – Lower Half



For inquiries about this product, write to: FEMA-NTES@FEMA.DHS.GOV

Course Title: Wide Area Search

Course Description: This course is designed to provide training for search responders to effectively conduct wide area searches due to natural disasters or human-made incidents.

Primary Threat Addressed in Course: All Hazards

Target Audience: Emergency Medical Services

Training Partner: Texas A&M Engineering Extension Service (TEEX)

Course Number: PER 213

Delivery Mode: R - Resident

Contact Hours: 22

Mapping Tool Version Date: November 23, 2016

Date of Course Creation / Revision:

Time Calculator

Hours	Minutes	# of ELOs	Time / ELO

Contact Hours Sum Check: 22.00

Course Output Information

Course Level: Basic

Primary DHS Mission Area for this Course: Response

Primary Core Capability for this Course: Mass Search and Rescue Operations

Secondary Core Capabilities for this Course: Operational Coordination, Planning

ELO #	Module #	Module ELO #	Enabling Learning Objectives (ELO)	Time (hours) 6 min=0.1 hr	Knowledge (0-6 scale)	Skill (0-7 scale)	Attitudes (0-5 scale)	KSA Total (0-18)	ELO Complexity	Core Capability	Misson Area
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Input | Output | Knowledge | Skill | Attitude and Ability | Knowledge Verbs | Skill Verbs | AA Verbs | Core Capabilities Definitions | About the Tool

Figure 3: Input Tab

Appendix A: Action Verb List

The following pages list the current performance / action verbs aligned to Bloom's New Taxonomy and score for each level of Bloom's New Taxonomy. The scores are listed for the Knowledge, Skill, and Attitude domains of learning that are accounted for in the mapping tool. **If a new action verb needs to be added to the list, see Appendix D on how to do this**.

Sources of Action Verbs

Using Blooms Taxonomy to Design E-learning (http://www.infosemantics.com.au/adobe-captivate-advanced-elearning-tutorials/using-blooms-taxonomy-to-design-e-learning-interactivity)
Bloom's Taxonomy of Learning Domains (http://www.nwlink.com/~donclark/hrd/bloom.html)

Score	Level	Definition and Example(s)	Verbs		
1	Remembering (Fact Learning)	**Definitions**: 1. Recall data or information. 2. The learning of verbal or symbolic information. (e.g., names, formulas, facts). 3. Recall or remember previously learned information without necessarily understanding, using, or changing it. **Examples:** Recite a policy. Quote prices from memory to a customer. Knows the safety rules.	Advise Answer Brief Calculate Count Define Describe Draw Elaborate Enumerate Express Identify Indicate Inform	Instruct Know Label List Mark Match Name Outline Point Quote Read Recall Recite Recognize	Recommend Record Recount Repeat Reproduce Select Specify State Tabulate Tell Trace View Write
2	Comprehending (Rule Learning)	**Definitions**: 1. Understand the meaning, translation, interpolation, and interpretation of instructions and problems. State a problem in one's own words. 2. Learn to use two or more facts in a manner that will provide regularity of behavior in an infinite variation of situations. **Examples:** Rewrites the principles of test writing. Explain in one's own words the steps for performing a complex task. Translates an equation into a computer spreadsheet.	Appraise Associate Communicate Compare Compile Compose Comprehend Compute Contrast Convert Defend Describe Discuss	Distinguish Encrypt Estimate Evaluate Explains Express Extends Extrapolate Format Forward Generalize Give an example Infer	Interpolate Interpret Measure Outline Paraphrase Predict Replace Restate Rewrite Route Summarize Translate

Score	Level	Definition and Example(s)	Verbs		
3	Applying (Procedure Learning)	**Definitions**: 1. Use a concept in a new situation or unprompted use of an abstraction. Applies what was learned in the classroom to novel situations in the work place. 2. Learn to perform step-by-step actions in the proper sequence. 3. Apply knowledge and concepts learned to solve new, concrete, or abstract problems in the work place. **Examples:** Use a manual to calculate an employee's vacation time. Apply laws of statistics to evaluate the reliability of a written test.	Administer Apply Calculate Change Chart Check Collect Complete Compute Condense Construct Control Delete Demonstrate Deploy Determine	Discover Edit Examine Execute Find Inform Initiate Instruct Implement Manipulate Modify Navigate Operate Pause Predict	Prepare Present Produce Relate Report Resume Set up Show Solve Start Stop Teach Transfer Use Utilize
4	Analyzing (Discrimination Learning)	**Definitions**: 1. Separate material or concepts into component parts so that its organizational structure may be understood. Distinguishes between facts and inferences. 2. Learn to group similar and dissimilar items according to their distinct characteristics. 3. Break problems, materials, or concepts into component parts to understand structural relationships and abstract organizational principles. **Examples:** Troubleshoot a piece of equipment by using logical deduction. Recognize logical fallacies in reasoning. Gathers information from a department and selects the required tasks for training.	Allocate Analyze Arrange Assign Break down Categorize Classify Collate Compare Confirm Consolidate Contrast Correlate Cross-check Deconstruct Designate Diagram Differentiate Discriminate	Distinguish Distribute Divide Eliminate Examine Extract Finalize Focus Group Identify Illustrate Infer Isolate Label Level Match Order Organize Outline	Prioritize Rank Realign Redistribute Reexamine Relate Reorganize Resolve Restate Schedule Select Separate Sort Subdivide Task Template Transform Translate Tune

Score	Level	Definition and Example(s)	Verbs		
5	Evaluating	**Definitions**: 1. Make judgments about the value of ideas or materials. 2. Use definite criteria to make assessments and/or value judgements to choose between different applications of concepts, ideas, methods, or materials to achieve a given purpose. **Examples:** Select the most effective solution. Hire the most qualified candidate. Explain and justify a new budget.	Appraise Approve Assess Compare Conclude Contrast Criticize Critique Decide	Determine Defend Describe Discriminate Evaluate Explain Grade Interpret Judge	Justify Measure Rank Rate Recommend Relate Select Support Test
6	Creating (Problem Solving)	**Definitions**: 1. Build a structure or pattern from diverse elements. Put parts together to form a whole, with emphasis on creating a new meaning or structure. 2. Learn to synthesize lower knowledge for the resolution problems. 3. Combine components or elements together in structures or patterns to create new concepts, meanings, objects, or wholes. **Examples:** Write a company operations or process manual. Design a machine to perform a specific task. Integrates training from several sources to solve a problem. Revises and process to improve the outcome.	Adapt Analyze Annotate Apply Arrange Assemble Build Categorize Change Combine Compile Compose Conclude Construct Convert Create Criticize Debug Decide Defend Derive Design Determine Develop Devise	Diagram Discover Draft Effect Explain Extend Facilitate Find Formulate Generalize Generate Hypothesize Illustrate Incorporate Infer Integrate Investigate Locate Manipulate Model Modify Negotiate Organize Personalize Plan	Predict Prepare Produce Project Propose Rearrange Reconstruct Relate Reorganize Resolve Restructure Revise Rewrite Search Solve Structure Substitute Summarize Synthesize Tell Triage Use War game Write

Score	Level	Definition and Example(s)	Verbs		
1	Perception (Encoding)	**Definitions**: 1. The ability to use sensory cues to guide motor activity. This ranges from sensory stimulation, through cue selection, to translation. 2. The perception of sensory stimuli that translate into physical performance. **Examples:** Detect non-verbal communication cues. Estimate where a ball will land after it is thrown and then moving to the correct location to catch the ball. Adjust heat of stove to correct temperature by smell and taste of food. Adjust the height of the forks on a forklift by comparing where the forks are in relation to the pallet.	Choose Describe Detect Differentiate Distinguish Feel	Hear Identify Isolate Relate Scan	See Select Smell Taste Visualize
2	Set (Gross Motor Skills)	**Definitions**: 1. Readiness to act. It includes mental, physical, and emotional sets. These three sets are dispositions that predetermine a person's response to different situations (sometimes called mindsets). 2. Learns manual dexterity in the performance of physical skills. **Examples:** Knows and acts upon a sequence of steps in a manufacturing process. Recognize one's abilities and limitations. Shows desire to learn a new process (motivation). NOTE: This subdivision of Psychomotor is closely related with the “Responding to phenomena” subdivision of the Affective domain.	Assault Begin Carry Creep Depart Display Explain Fall Fire	Hold Jump Lift Move Proceed Pull React Run Show	State Stay Swim Throw Turn Twist Volunteer Wear
3	Guided Response (Readiness)	**Definitions**: 1. The early stages in learning a complex skill that includes imitation and trial and error. Adequacy of performance is achieved by practicing. 2. Learning to have readiness to take a particular action. **Examples:** Performs a mathematical equation as demonstrated. Follows instructions to build a model. Responds hand-signals of instructor while learning to operate a forklift.	Able Assist Challenge Copy Cross Delay	Follow Guard Prepare Prime React Ready	Reproduce Respond Set Stand to Trace
4	Mechanism (Basic proficiency)	**Definitions**: 1. This is the intermediate stage in learning a complex skill. Learned responses have become habitual and the movements can be performed with some confidence and proficiency.	Access Activate Actuate	Fit Fix Fuel Grind Ground	Reestablish Refuel Record Release

Score	Level	Definition and Example(s)	Verbs		
		2. Learning to perform a complex physical skill with confidence and proficiency. **Examples:** Use a personal computer. Repair a leaking faucet. Drive a car.	Adjust Administer Align Apply Archive Assemble Attach Balance Breach Calibrate Camouflage Center Clean Clear Close Collect Connect Construct Cover Debrief Decontaminate Deliver Destroy Diagnose Disassemble Disconnect Disengage Dismantle Dispatch Display Dispose Disseminate Drive Egress Elevate Emplace Employ Engage Energize Enter	Harden Heat Initialize Input Insert Inspect Install Integrate Intercept Isolate Issue Launch Log Lubricate Maintain Manage Manipulate Measure Mend Mix Mount Move Navigate Obtain Open Operate Order Organize Place Park Perform Plot Police Position Post Press Pressurize Process Procure Provide	Relocate Remove Repair Replace Replenish Retrieve Return Reset Rotate Save Secure Send Service Shutdown Sight Signal Sketch Splint Squeeze Stockpile Store Stow Strike Submit Supervise Support Sweep Take Take charge Tap Test Tighten Trace Transfer Transmit Transport Treat Troubleshoot Type

Score	Level	Definition and Example(s)	Verbs		
			Exchange Establish Evacuate Fasten Fill out Fire	Publish Raise Range Reach	Unload Utilize Update Write Zero
5	Complex Overt Response (Expert; Continuous Movement)	**Definitions**: 1. The skillful performance of motor acts that involve complex movement patterns. Proficiency is indicated by a quick, accurate, and highly coordinated performance, requiring a minimum of energy. This category includes performing without hesitation, and automatic performance. For example, players are often utter sounds of satisfaction or expletives as soon as they hit a tennis ball or throw a football, because they can tell by the feel of the act what the result will produce. 2. Learning to track, make compensatory movements based on feedback.	Advance Assemble Build Calibrate Construct Control Dismantle Display Fasten Fix	Follow Grind Guide Heat Hover Land Maneuver Manipulate Measure	Mend Mix Organize Regulate Sketch Steer Take off Track Traverse
		Examples: Maneuvers a car into a tight parallel parking spot. Operates a computer quickly and accurately. Displays competence while playing the piano.	**NOTE:** The Key Words are largely the same as Mechanism (4) but will have adverbs or adjectives that indicate that the performance is quicker, better, more accurate, etc.		
6	Adaptation	**Definitions:** 1. Skills are well developed and the individual can modify movement patterns to fit special requirements. 2. Learning to modify a complex physical skill to accommodate a new situation. Examples: Responds effectively to unexpected experiences. Modifies instruction to meet the needs of the learners. Perform a task with a machine that it was not originally intended to do (machine is not damaged and there is no danger in performing the new task).	Acclimatize Accommodate Adapt Alter Ambush Attack Bypass Change Conduct Deploy Direct Draw Evade	Infiltrate Lay Lead Load Map Neutralize Occupy Orient Pack Patrol Prevent Program Protect	Queue Rearrange Reconcile Recover Reduce Relieve Reorganize Revise Suppress Tailor Temper Train Vary

Score	Level	Definition and Example(s)	Verbs		
7	Origination	**Definitions**: 1. Creating new movement patterns to fit a particular situation or specific problem. Learning outcomes emphasize creativity based upon highly developed skills. 2. Learning to create a new complex physical skill to accommodate a new situation. **Examples:** Constructs a new theory. Develops a new and comprehensive training programming. Creates a new gymnastic routine.	Arrange Build Cause Combine Compose	Construct Contrive Correct Create Design	Initiate Invent Make Originate

Score	Level	Definition and Example(s)	Verbs		
1	Receiving (Perception; Situation Awareness)	**Definitions**: 1. Awareness, willingness to hear, selected attention. 2. Learning and demonstrating the ability to perceive the normal, abnormal, and emergency condition cues associated with the performance of an operational procedure. Situational Awareness of operational condition cues. **Examples:** Listen to others with respect. Listen for and remember the name of newly introduced people.	Ask Attend closely Choose Describe Erect Follow Give Hold Identify	Listen Listen attentively Locate Monitor Name Observe Perceive Point to Recognize	Reconnoiter Reply Select Show awareness Show sensitivity Sit Use Wait
2	Responding (Interpreting)	**Definitions**: 1. Active participation on the part of the learners. Attends and reacts to a particular phenomenon. Learning outcomes may emphasize compliance in responding, willingness to respond, or satisfaction in responding (motivation). 2. Learning and demonstrating mental preparedness to encode operational cues as indicators of normal, abnormal and emergency conditions associated with the performance of an operational procedure. **Examples:** Participates in class discussions. Gives a presentation. Questions new ideals, concepts, models, etc. in order to fully understand them. Know the safety rules and practices them.	Accomplish Achieve Acknowledge Aid Announce Answer Ask Assist Communicate Complete Comply Conform Demonstrate	Describe Discuss Encode Execute Give Greet Help Indicate Interpret Label Notify Obey rules Perform	Practice Present React Read Recite Report Request Respond Resume Select Show Tell Write

Score	Level	Definition and Example(s)	Verbs		
3	Valuing (Judgement)	**Definitions**: 1. The worth or value a person attaches to a particular object, phenomenon, or behavior. This ranges from simple acceptance to the more complex state of commitment. Valuing is based on the internalization of a set of specified values, while clues to these values are expressed in the learner's overt behavior and are often identifiable. 2. Learning and demonstrating the ability to judge the worth or quality of normal, abnormal, and emergency cues associated with the performance of an operational procedure. **Examples:** Demonstrates belief in the democratic process. Is sensitive towards individual and cultural differences (value diversity). Shows the ability to solve problems. Proposes a plan to social improvement and follows through with commitment. Informs management on matters that one feels strongly about.	Alert Appreciate Approve Assess Authenticate Believe Cancel Choose Complete Demonstrate Differentiate	Explain Follow Form Initiate Invite Join Judge Justify Prioritize Propose Qualify	Read Reassess Report Review Select Share Study Validate Verify Work
4	Organization (Competence; application of resource management strategies and tactics)	**Definitions**: 1. Organizes values into priorities by contrasting different values, resolving conflicts between them, and creating a unique value system. The emphasis is on comparing, relating, and synthesizing values. 2. Learning and demonstrating the mental preparedness to make decisions by using prioritized strategies and tactics in response to normal, abnormal, and emergency condition cues associated with the performance of an operational procedure. **Examples:** Recognizes the need for balance between freedom and responsible behavior. Accepts responsibility for one's behavior. Explains the role of systematic planning in solving problems. Accepts professional ethical standards. Creates a life plan in harmony with abilities, interests, and beliefs. Prioritizes time effectively to meet the needs of the organization, family, and self.	Adhere Allow Alter Arrange Assume Combine Command Compare Complete	Coordinate Defend Enforce Ensure Explain Formulate Generalize Identify Influence	Integrate Modify Order Organize Prepare Prescribe Relate Serve Synthesize

Score	Level	Definition and Example(s)	Verbs		
5	Internalizing Values/ Characterization (Innovation; Generation of new resource management strategies and tactics)	**Definitions**: 1. Has a value system that controls their behavior. The behavior is pervasive, consistent, predictable, and most importantly, characteristic of the learner. Instructional objectives are concerned with the student's general patterns of adjustment (personal, social, emotional). 2. Learning and demonstrating the mental preparedness to make decisions by generating the results expected upon completion of a prioritized strategies or tactics in response to normal, abnormal, and emergency cues associated with the performance of an operational procedure, and the ability to generate new prioritized strategies and tactics in response to abnormal or emergency cues. **Examples:** Shows self-reliance when working independently. Cooperates in group activities (displays teamwork). Uses an objective approach in problem solving. Displays a professional commitment to ethical practice on a daily basis. Revises judgments and changes behavior in light of new evidence. Values people for what they are, not how they look.	Act Conceive Conjecture Develop Devise Discriminate Display Formulate	Imagine Influence Innovate Listen Modify Perform Practice	Propose Qualify Question Revise Serve Solve Verify

Appendix B: Tool Development Information

Intended Audience for Appendix B

This appendix is meant as a technical guide to provide detailed information on how the various calculations are carried out and not meant for use during the course mapping process.

General Rules for entire tool

1. Each of the tabs is protected and there is no password to unlock the tabs for editing.
2. Data validation of terms used for all drop down combo boxes are found on the “Lexicon” tab.
3. Operational definitions of terms for delivery mode are found on the “Delivery Mode” tab.
4. Operational definitions of the FEMA Core Capabilities are found on the “Core Capabilities Definitions” tab.
5. Several tabs are hidden but can be easily unhidden, see Appendix C to learn how to unhide tabs.
6. The spectrum for values of KSA Total assigned to the Course Level is on the “CalRefs” tab and listed below in the “Rules for Calculation of Course Level” section.

Rules of Selection of Primary and Secondary Core Capabilities

1. Each course objective will be mapped to the one Core Capability to which it most closely aligns. Objectives that do not map to a Core Capability should be marked “None” on the mapping tool.
2. The “None” Core Capability is eliminated from consideration as a designated Primary or Secondary Core Capability.
3. To be considered a primary or secondary Core Capability, the percent of Enabling Learning Objectives in any one Core Capability must equal to or greater than 15% of the total number of Enabling Learning Objectives (ELO) for the course.
4. The primary Core Capability (black ball icon) is the one Core Capability that meets operational definitions #1 and #2 above and has the highest “Average ELO Complex Ratio” score.
5. All secondary Core Capabilities (green ball icon) must meet the operational definitions #1 and #2, above. Additionally, all secondary Core Capabilities must be equal to or greater than 2.5 multiplied times the primary Core Capability “Average ELO Complex Ratio” value.
6. Any Core Capability in which its “Average ELO Complex Ratio” multiplied by 3.5 is equal to or greater than the primary Core Capability “Average ELO Complex Ratio” value will be indicated with a yellow ball icon. This core capability should be looked at by course designers to consider additional ELO or increase the complexity of the current ELO so that the core capability can be approved as a secondary core capability for mapping purposes.

Visit five minute lessons (https://fiveminutelessons.com/) for the Excel equation that generates the list of Secondary Core Capabilities listed in the summary box, on the “Graph – Core Capabilities” tab.

Rules for Calculation of Course Level

1. The primary and secondary Core Capabilities KSA Total scores are summed.
2. The value from step 1 is divided by the total number of ELOs for the primary and secondary Core Capabilities.
3. The course level is based on the value from step 2, in relation to the table below.

Course Level

Lower Limit	***Upper Limit***	***Level***	***Value***
1	6	1. Basic	1
6.01	12	2. Intermediate	2
12.01	18	3. Advanced	3
Assigned by NTED to Executive level audience courses – regardless of content level		4. Executive	4

Specific Equations across Worksheets

1. Knowledge, Skill, and Attitude (KSA) Total – "Input" tab

   The values for Knowledge, Skill, and Attitude are summed for a maximum score of 18.

2. The Complexity of each Enabling Learning Objective – "Input" tab

   The values are calculated by multiplying the amount of time for the Enabling Learning Objective and the Knowledge, Skill, and Attitudes (KSA) Total score.

$$ELO\ Complexity = (Time\ x\ KSA\ Total)$$

3. Number of ELOs by CC – "Data" tab

   Uses a COUNTIF command, the Data tab calculates the number (if any) of core capabilities chosen for the ELO in the "Input" tab's "Core Capability" column.

4. Percent of ELO by CC – "Data" tab

   Divides the value in the "Number of ELOs by CC" column, by the total number of ELOs for the course.

5. ELO Complexity by CC – "Data" tab

   Uses a SUMIF command, the Data tab sums the values of all the matching Core Capability's "Complexity of ELO" values, from the "Input" tab.

6. Percent of Class Time by CC – "Data" tab

   Uses a SUMIF command, sums the values of all the matching Core Capability's "time" values from the "Input" tab, divided by the "Contact Hours Sum Check" value, from the "Input" tab.

7. Weighted Average ELO Complexity – "Data" tab

$$\frac{(ELO\ Complexity\ by\ CC\ \times Number\ of\ ELOs\ by\ CC)}{(Total\ Number\ of\ Enabling\ Learning\ Objectives)}$$

8. Mission Area – "Input" tab

   The National Preparedness Goal (https://www.fema.gov/national-preparedness-goal) defines the Mission Area that is assigned to each Core Capability.

9. Value of None CC Weighted Complexity – "Data" tab

   The INDEX MATCH command finds and copies the value of the "Weighted Average ELO Complexity" for the "None" Core Capability.

   Visit AbleBits (https://www.ablebits.com/office-addins-blog/2014/08/13/excel-index-match-function-vlookup/) for instructions on using the INDEX MATCH functions.

10. Max Complexity Value – "Data" tab

    Uses MAX command, determines the maximum value of from the "Weighted Average ELO Complexity" column.

    If MAX value is equal to the "Value of None CC Weighted Complexity" column, this tab finds the next largest value of the "Weighted Average ELO Complexity" column, using the LARGE command.

    Thus, eliminating the "None" Core Capability from consideration as the maximum value, so it will not be assigned as the primary Core Capability and course subject.

11. Less Than 15% – "Data" tab

    Conducts a conditional IF-THEN analysis to determine if the "Percent of ELO by CC" column is less than 15% of the entire course content. If the condition is true, a value of one is given; if the condition is false, a value of zero is given.

12. Greater Than 15% – "Data" tab

    Conducts a conditional IF-THEN analysis to determine if the "Percent of ELO by CC" column is greater than 15% of the entire course content. If the condition is true, a value of one is given; if the condition is false, a value of zero is given.

13. None Rule – “Data” tab

    Conducts a conditional IF-THEN analysis to determine if the row is the “None” Core Capability row. If the value is true, a value of zero is give; if the value is false, a value of one is given.

14. 2.5x Rule – “Data” tab

    Conducts a conditional IF-THEN analysis to determine if the row’s value for the “Weighted Average ELO by CC” is equal to or greater than 2.5 times the value found in the “Max Complexity Value” column. If the value is true, a value of one is given; if the value is false, a value of zero is given.

15. 3.5x Rule – “Data” tab

    Conducts a conditional IF-THEN analysis to determine if the row’s value for the “Weighted Average ELO by CC” is equal to or greater than 3.5 times the value found in the “Max Complexity Value” column. If the value is true, a value of one is given; if the value is false, a value of zero is given.

16. Mapped CC – “Data” tab

    Conducts a conditional IF-THEN analysis to determine if a Core Capability is mapped to this course. If the “None Rule,” “Greater Than 25%,” and “2.5x Rule” values are equal to one, then that specific Core Capability is mapped to the course.

17. Primary CC – “Data” tab

    Conducts a conditional IF-THEN analysis to determine if a Core Capability is mapped as the Primary Core Capability to this course. If the “Mapped CC” value is equal to one and the “Weighted Average ELO Complexity,” and “Max Complexity Value” columns are equal to each other, then a value of three is given. Otherwise, a value of zero is given.

18. Secondary CC – “Data” tab

    Conducts a conditional IF-THEN analysis to determine if a Core Capability is mapped as a Secondary Core Capability to this course. If the “Mapped CC” value is equal to one and the “Primary CC” value is equal to zero, then a value of one is given. Otherwise, a value of negative one is given.

19. Flag CC – “Data” tab

    Conducts a conditional IF-THEN analysis to determine if a Core Capability is mapped as a Secondary Core Capability to this course. If the “None Rule” and the “3.5x Rule” values are equal to one, then a value of one is given. Otherwise, a value of zero is given.

20. CC Icon Alert – “Data” tab

    Uses a SUM command to add the values from the “Primary CC,” “Secondary CC,” and “Flag CC” columns.

    A value of three equals Primary Core Capability and Course Subject and is represented by a black ball icon on the table of Core Capabilities, in the “Graph – Core Capability” tab.

    A value of one equals Secondary Core Capability and is represented by a green ball icon on the table of Core Capabilities, in the “Graph – Core Capability” tab.

    A value of zero equals a Flag Core Capability and is represented by a yellow ball icon on the table of Core Capabilities, in the “Graph – Core Capability” tab.

    A value of negative one means that the Core Capability is not mapped to this course.

21. Number of Mapped ELOs – “Data” tab

    Uses a SUMIF command to:

    a) Conducts an IF-THEN analysis of “Mapped CC” column, if the value equals one then,

    b) Sum the values from the “Number of ELOs by CC” column for all Core Capabilities meeting the condition in the IF-THEN step above.

22. CC Avg KSA – “Data” tab

    Uses a SUMIF command to:

    Find all of the Core Capabilities in the “Input” tab that match the value in the “Data” tab “Core Capability” column.

    Sums all of the “Total KSA” values in the “Input” tab for each of the matching Core Capability.

    Divides the SUM by the “Number of ELOs by CC” value in the “Data” tab.

23. Weighted Average KSA of Mapped Core Capabilities – “Data” tab

    Uses a SUMPRODUCT command to multiple the value of the “Number of ELOs by CC,” “Mapped CC,” and “CC Avg KSA” columns.

    The SUMPRODUCT value is then divided by the “Number of Mapped ELOs” to produce a weighted average.

24. Course Level by CC – “Data” tab

    Uses a VLOOKUP command on the “CC Avg KSA” value to assign the “Course Level” for each core capability.

Course Level

Lower Limit	***Upper Limit***	***Level***	***Value***
1	6	1. Basic	1
6.01	12	2. Intermediate	2
12.01	18	3. Advanced	3
Assigned by NTE to Executive level audience courses – regardless of content level		4. Executive	4

25. Course Subject – “Data” tab

    Uses an INDEX MATCH command to:

    INDEX all of the “Core Capabilities” and MATCH the value from the “Weighted Average ELO Complexity” column to the “Core Capability” value.

26. Course Level – “Data” tab

    Uses a VLOOKUP command on the “Weighted Average KSA of Mapped Core Capabilities” value to assign the “Course Level” for the course.

Course Level

Lower Limit	***Upper Limit***	***Level***	***Value***
1	6	1. Basic	1
6.01	12	2. Intermediate	2
12.01	18	3. Advanced	3
Assigned by NTED to Executive level audience courses – regardless of content level		4. Executive	4

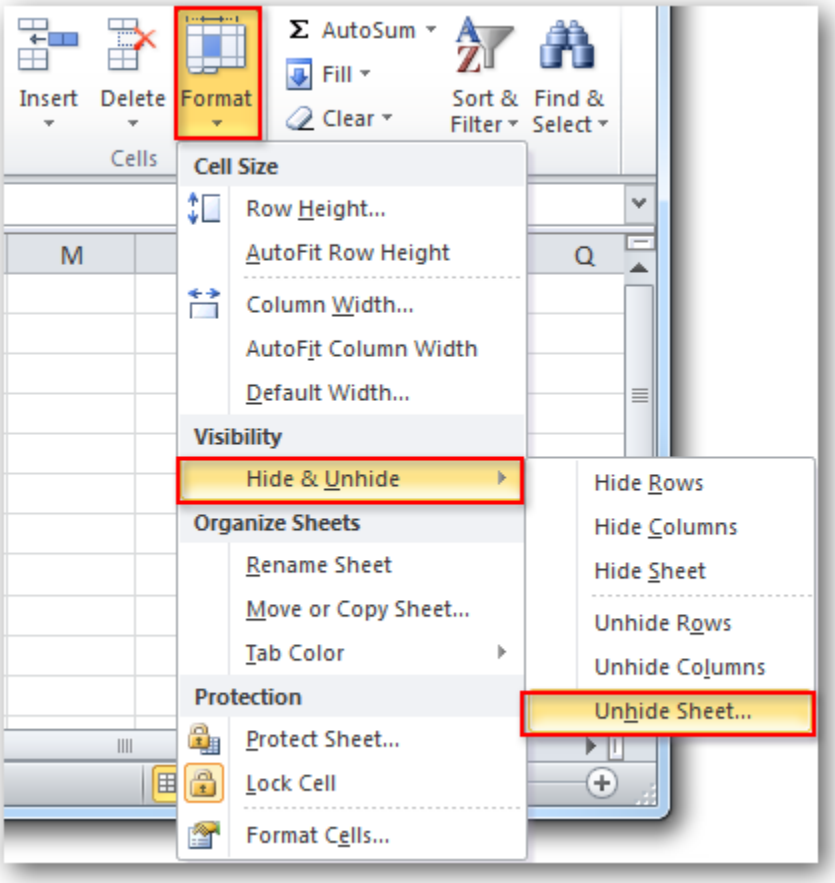
27. Draft National Course Number – “Data” tab

    Uses a VLOOKUP command for the value in the “Course Subject” column to find the two-letter course subject abbreviation from the “Lexicon” tab.

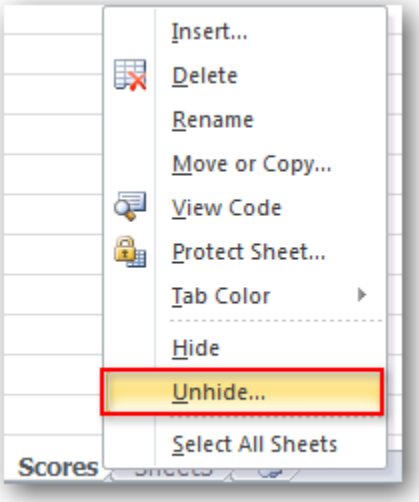
    Uses a CONCATENATE command to put the values from the put the values from the VLOOKUP above, “Course Level,” and the value found in the “Delivery Mode (NCN)” from the “Input” tab.

Appendix C: How to Unhide Tabs (Worksheets) in MS Excel

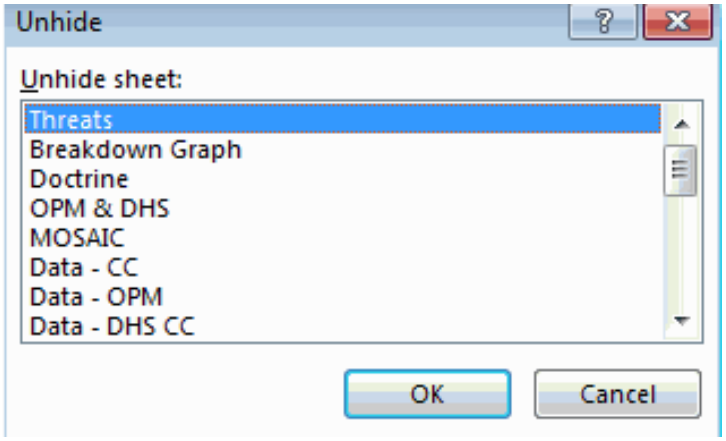
To unhide a worksheet go to the **Home** tab, click on **Format** in the **Cells** group, and then under **Visibility** select **Hide & Unhide**, then **Unhide Sheet.**



Or, you can right-click on any visible tab, and select **Unhide.**



In the **Unhide** pop-up window, select the worksheet to unhide and click “OK.” *Note: Although you can hide multiple sheets at once, you can only unhide one sheet at a time.*



Appendix D: Adding Actions Verbs to Library

12	3	1	Identify and discuss key principles and processes for maintaining team accountability.	1.83	1	1	1	3	5.49	Planning	Response
13	3	2	Articulate the importance of team accountability.	1.83				0	0.00		
14	3	3	Identify search skills supporting wide area search.	1.83	1	1	1	3	5.49	Mass Search and Rescue Operations	Response

If the entire line appears red (as per the example above), this is an indication that the "action verb" used for this ELO is not in the current action verb library and must be added.

Step 1: Ensure the first word in the ELO is the intended "action verb" and not an adverb or other non- "action verb." If the first word is not the intended "action verb," then delete the word(s) from the ELO in the mapping file so that the first word is the desired "action verb" to be used for assessment via Bloom's New Taxonomy.

Step 2: If the line is still red, then the entire mapping team must articulate what are the possible scores for the most common uses of the "action verb." Each possible score must be assessed via the Knowledge, Skill, and Attitude rubrics provided on the respective "Knowledge," "Skill,", and "Attitude" tabs.

Step 3: A majority vote of the entire team decides the final scores on each rubric.

Step 4: Add the new "action verb" to each of the "Knowledge Verbs," "Skill Verbs,", and "AA Verbs" tabs at the decided upon score values.

- Find the first entry under each scoring column that says "[BLANK]" and replace with the new "action verb." Be advised, **DO NOT** have any blank spaces before or after the new "action verb" as this will cause calculation problems.

Step 5: Save the mappinig file and write to FEMA at FEMA-NTES@FEMA.DHS.GOV and send a detail account of which "action verbs" and scores where assigned so that they can be reviewed by the FEMA staff and updated in the master mapping file template.

Appendix E: Recommended Readings

Bloom's Taxonomy

Anderson, L. W., Krathwohl, D. R., Airasian, P. W., Cruikshank, K. A., Mayer, R. E., Pintrich, P. R., Raths, J., Wittrock, M. C. (2001). *A Taxonomy for Learning, Teaching, and Assessing: A revision of Bloom's New Taxonomy of Educational Objectives.* New York: Pearson, Allyn & Bacon.

Bloom, B. S. (Ed.). Engelhart, M. D., Furst, E. J., Hill, W. H., Krathwohl, D. R. (1956). *Taxonomy of Educational Objectives, Handbook I: The Cognitive Domain.* New York: David McKay Co Inc.

Clark, R. & Chopeta, L. (2004). *Graphics for Learning: Proven Guidelines for Planning, Designing, and Evaluating Visuals in Training Materials*. San Francisco: Jossey-Bass/Pfeiffer.

Clark, D. R. (2015, January 12). *Bloom's Taxonomy of Learning Domains* (http://nwlink.com/~donclark/hrd/bloom.html). Retrieved June 22, 2016.

Mager, R. F. (1997). *The New Mager Six-Pack*. Atlanta, GA: The Center for Effective Performance.

Federal Publications

Federal Emergency Management Agency. (2015, September). *National Preparedness Goal 2nd Edition* (https://www.fema.gov/media-library/assets/documents/25959). Retrieved June 2016.

Learn About Presidential Policy Directive-8. (2016, June 16) (https://www.fema.gov/learn-about-presidential-policy-directive-8). Retrieved July 06, 2016.

Presidential Policy Directive / PPD-8: National Preparedness. (2016, June 6). (https://www.dhs.gov/presidential-policy-directive-8-national-preparedness) Retrieved July 06, 2016.

White House. (2011, March 30). Presidential Policy Directive 8 – National Preparedness (https://www.dhs.gov/xlibrary/assets/presidential-policy-directive-8-national-preparedness.pdf). Washington, DC. Retrieved June 22, 2016.