13168 – Educating the Workforce for Early Integration of ESOH into JCIDS and Systems Engineering

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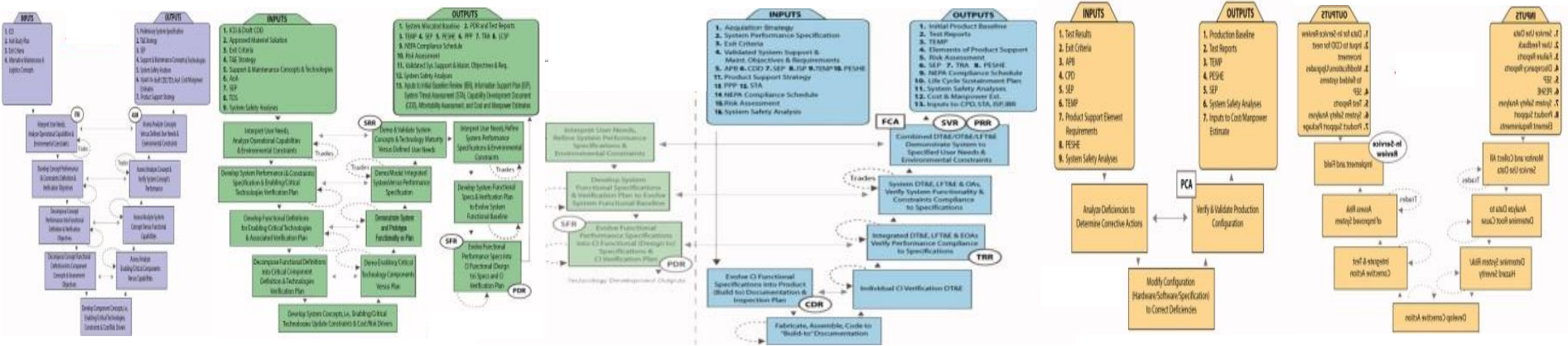
Table of Contents

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Purpose

Update attendees on the Defense Safety Oversight Council (DSOC) Acquisition and Technology Programs Task Force (ATP TF) Initiatives to provide improved Environment, Safety, and Occupational Health (ESOH)/System Safety training to the acquisition workforce through Defense Acquisition University (DAU):

- Continuous Learning Module (CLM) on enhancing ESOH involvement in the Joint Capabilities Integration and Development System (JCIDS) document development process
- CLM on integrating ESOH into Systems Engineering
- Improving ESOH content throughout the DAU curricula

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Integrating ESOH into Acquisition

CLR030 ESOH in Joint Capabilities & Integration Development System

CLE009 ESOH in Systems Engineering

Table of Contents

▸ Purpose

▸ ESOH in JCIDS

▸ ESOH in Systems Engineering

▸ ESOH Across the DAU Curricula

▸ Questions

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Background: ESOH in JCIDS Objective

▸ To be able to successfully influence system design development from ESOH perspective, need to first influence the JCIDS document development process

▸ Need to have key ESOH requirements captured in the JCIDS documents in terms of "capability statements"

– Enable program office ESOH staff to trace ESOH technical requirements back to the JCIDS requirements

– Enhance program office ESOH staff ability to successfully advocate for ESOH considerations in design trade off decisions

– Link ESOH risk reduction to system cost, schedule, and performance requirements

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Training Development

▸ Effort funded by DSOC through the ATP TF

▸ ATP TF developed course content by working with the NDIA Systems Engineering Division, ESOH Committee and the DoD Acquisition ESOH IPT, led by DUSD(I&E), to facilitate industry participation

▸ Training Purpose: prepare ESOH SMEs to be effective participants in the JCIDS document development process

▸ Approach: Two Phases

  ▸ Phase 1: Content Development (Sep 2009 - Sep 2010)

  ▸ Phase 2: Production of On-Line Course (Oct 2010 – Mar 2011)

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Training Development (cont)

▸ End State: a Defense Acquisition University (DAU) Continuous Learning Module (CLM)

▸ Generic DoD training, not Service-specific
  – Potential for follow-on Service-specific training development

▸ NDIA Systems Engineering Division ESOH Committee sponsored three workshops to develop training materials content
  – First workshop held 16-17 Sep 09 in St. Louis, MO
  – Second workshop held 18-19 Nov 09 in Arlington, VA
  – Third workshop held 17-19 Feb 10 in Arlington, VA

▸ ESOH in JCIDS BETA test 25-26 Jan 2011
  – Participants drawn primarily from workshop attendees
  – Provided critical course shaping inputs

▸ Course delivered to DAU on 15 Feb 2011

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Phase 1 (Course Development): Course Overview

▶ Target audience: ESOH Subject Matter Experts (SMEs) supporting JCIDS document development

▶ Content:

– Overview of the JCIDS process

– Developing and prioritizing applicable and appropriate ESOH capability statements

– Effective participation in the JCIDS document development process, i.e., how to be an effective advocate for incorporating ESOH capability statements

Phase 1 (Content Development): Course Content

▸ Overview of the JCIDS process - focused on what ESOH SMEs will need

– Terminology

– Top-level process description

– Sequence and appropriate content of documents:

Initial Capabilities Document (ICD)

Capability Development Document (CDD)

Capability Production Document (CPD)

▸ Developing and prioritizing applicable and appropriate ESOH capability statements

– Identifying potential ESOH issues/concerns for a given solution/system

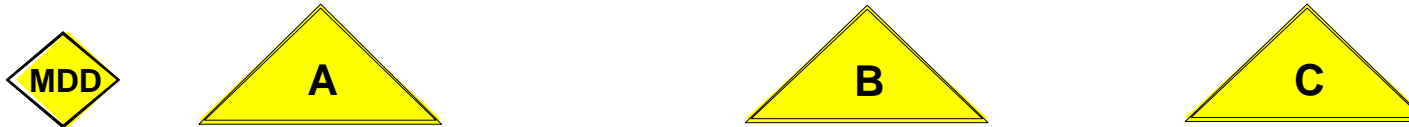– Tailoring for the given JCIDS document (ICD vs. CDD vs. CPD)

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Phase 2 (Production of On-Line Course): Methodology

▶ Developed formal training course in Rapid Online Content Creation Environment (ROCCE)

▶ Passed configuration control to Instructional Designers

  – Incorporated comments from 25-26 Jan 2011 Stakeholder Beta Testing

  – Verify/Validate – screen by screen Beta testing

▶ Launched on DAU Learning Management System 15 Mar 2011. Graduates as of Sept 5: 86

▶ DAU Course Catalogue listing: CLR 030

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Conclusion

DAU CLM CLR 030, ESOH in JCIDS, is designed to contribute to preservation of combat capability by reducing preventable losses without encumbering the JCIDS process

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This course is built……….

MDD · **A** · **B** · **C**

CLR030 ESOH in Joint Capabilities & Integration Development System

| CBA | ICD | Materiel Solution Analysis | Technology Development | CDD | Engineering & Manuf Development | CPD | Production & Deployment | O&S |

Table of Contents

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Background: ESOH in Systems Engineering Objective

▸ To be able to successfully influence system design development; need to successfully integrate ESOH considerations into the Systems Engineering process

▸ To be effective, need to integrate ESOH into Systems Engineering using the System Safety methodology in MIL-STD-882D

– Enable program office ESOH staff to trace ESOH technical requirements

– Enhance program office ESOH staff ability to successfully advocate for ESOH considerations in design trade off decisions

– Link ESOH risk reduction to system life cycle cost, schedule, and performance requirements

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Training Development

‣ Update effort funded by DSOC through the ATP TF

‣ ATP TF developing training by working with the DoD Acquisition ESOH IPT led by ODUSD(I&E)

‣ Training Purpose: prepare ESOH SMEs to be effective participants in the Systems Engineering process

‣ Approach: Two Phases

    ‣ Phase 1: Content Development (Aug 2010 - Sep 2011)

    ‣ Phase 2: Production of On-Line Course (Oct 2011 – Dec 2011)

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Training Development (cont)

▸ End State: a Defense Acquisition University (DAU) Continuous Learning Module (CLM)

▸ Generic DoD training, not Service-specific

▸ ESOH in Systems Engineering BETA tests 27-29 Jul 2011 and 13 Sep 2011

▸ Participants drawn primarily from DoD Acquisition ESOH IPT; all Services represented

– Provided critical course shaping inputs

▸ Course delivered to DAU on 23 Sep 2011

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Phase 1 (Content Development): Course Overview

▶ Target audience: ESOH Subject Matter Experts (SMEs) supporting acquisition programs

▶ Content:

– Overview of the System Safety methodology

– Developing and prioritizing applicable and appropriate ESOH criteria, constraints, and requirements

– Effective participation in the Systems Engineering process, i.e., how to be an effective advocate for incorporating ESOH requirements (mitigations)

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Phase 1 (Content Development): Course Content

▸ Overview of the Systems Engineering 882 process - focused on what ESOH SMEs will need

- – Terminology

- – Eight Elements of System Safety

- – Risk Assessment in System Safety

- – System Safety Order of Precedence

- – Typical Hazard Analyses

- – Using System Safety to Integrate ESOH Into Systems Engineering

- – Using System Safety to Integrate ESOH Into the Materiel Solution Analysis Phase

- – Using System Safety to Integrate ESOH Into the Technology Development Phase

- – Using System Safety to Integrate ESOH Into the Engineering and Manufacturing Development Phase

- – Using System Safety to Integrate ESOH Into the Production and Deployment Phase

- – Using System Safety to Integrate ESOH Into the Operations and Support Phase

- – Module Summary

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Phase 2 (Production of On-Line Course): Methodology

▶ Developed formal training course in the Rapid Online Content Creation Environment (ROCCE)

▶ Passed configuration control to Instructional Designers
  – Incorporated comments from Stakeholder Beta Testing
  – Verify/Validate – screen by screen Beta testing

▶ Launched on DAU Learning Management System April 2005. Graduates as of Sept 5: 7,310

▶ DAU Course Catalogue listing: CLE 009

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Conclusion

DAU CLM CLE 009, ESOH in Systems Engineering, is designed to help DoD protect personnel from accidental death, injury or occupational illness; defense systems, infrastructure, and property from accidental destruction, or damage while executing the mission requirements of National Security.

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This course is updated……
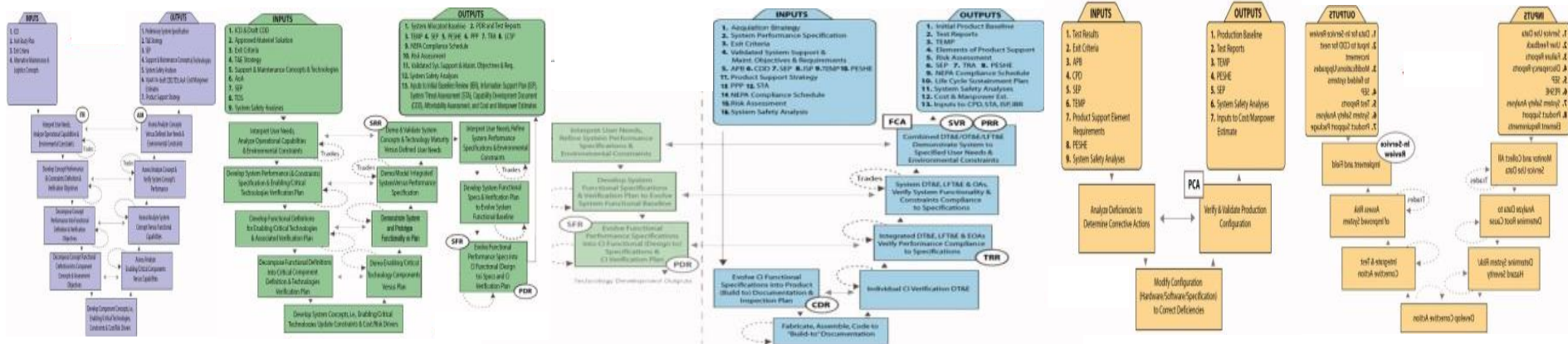
CLE009 ESOH in Systems Engineering

Table of Contents

▸ Purpose

▸ ESOH in JCIDS

▸ ESOH in Systems Engineering

▸ ESOH Across the DAU Curricula

▸ Questions

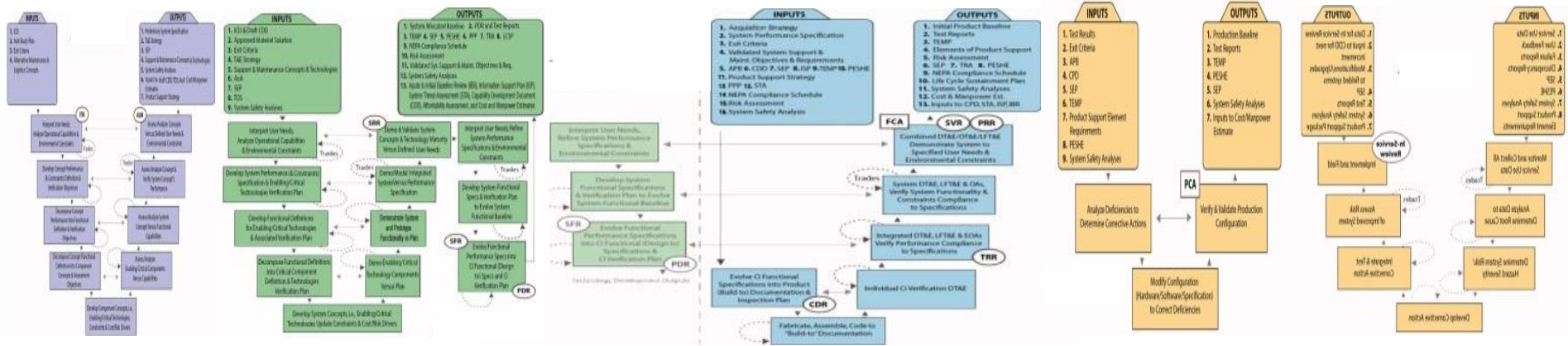Booz | Allen | Hamilton

Integrating ESOH across the DAU Curricula

▸ Started: February 2006
▸ Overview: Funding to accelerate the work of the DoD Acquisition ESOH IPT to provide ESOH inputs to existing DAU courses
▸ Results to date: courses completed
  – ACQ 101 Fundamentals of Systems Acquisition
  – LOG 102 System Sustainment Management Fundamentals
  – SAM 201 Intermediate Software Acquisition Management
  – LOG 235 A & B Performance Based Logistics
  – CLM 035 ESOH Continuous Learning Module Updates
  – SYS 101 Fundamentals of Systems Engineering
  – SYS 202 Systems Engineering Management
  – ACQ 201A Intermediate Systems Acquisition
  – SYS 203 Intermediate Systems Planning, R&D, and Engineering
  – FE 201 Facilities Engineering
▸ DSOC Funding: $460,000 (FY06 and FY07)
▸ POC: ODUSD(I&E) David Asiello

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Future Goal "Integrating ESOH into Acquisition": both courses merged

MDD △ **A** △ **B** △ **C**

CLR030 ESOH in Joint Capabilities & Integration Development System

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CLE009 ESOH in Systems Engineering

Table of Contents

▶ Purpose

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▶ ESOH in Systems Engineering

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Questions?