

IX CENTER, CLEVELAND, OH

OCTOBER 22, 2018

WWW.ENERGYTECH.ORG

The FUSION of ENERGY and TECHNOLOGY -- bringing ENLIGHTENMENT

energytech

"Rise above the crowd"

Special Event
**ENERGY
TECH
2018**

Professional Development

Fundamentals of Systems Engineering

EnergyTech, in collaboration with INCOSE and PPI, is offering a day-long tutorial on October 22, 2018 to demonstrate the business purpose of a systems approach to engineering, which will provide abundant evidence of its high value. Over the course of the day, you will practice in workshop format analysis-based methods of requirements capture and validation, model-based design, and the conduct of trade-off studies, all on a single, technology-based system.



ROBERT HALLIGAN

Mr. Robert Halligan, PPI Managing Director, is an executive professional engineer, manager and engineering practitioner, renowned internationally for his role in the practice and improvement of technology-based projects. He is highly sought after as a consultant for his considered expertise. Mr. Halligan has worked extensively in Australia, the United States and the United Kingdom. In recent years, Mr. Halligan has consulted and trained on engineering processes for companies whose goals have been to successfully commercialize their technologies. Project Performance International is a global systems engineering education and consulting firm, partnering with INCOSE and EnergyTech to provide this special event.



Register at: www.energytech.org



Fundamentals of Systems Engineering Tutorial

0. THE BUSINESS CASE FOR SYSTEMS ENGINEERING
evidence of the value of systems engineering to the enterprise

1. THE SYSTEM LIFE CYCLE AND SOLUTION DEVELOPMENT

the problem domain: the four key problem definition information sets

the solution domain: key concepts, relationships, and work products

Workshop: Systems Engineering Principles

2. PRINCIPLES, CONCEPTS AND ELEMENTS

SE processes - process elements,

"Vee" and "Wedge" models

traceabilities

requirements traceability

design traceability

system verification traceability

relationship to Six Sigma, Lean, Agile

3. PROBLEM DEFINITION - REQUIREMENTS ANALYSIS

RA methodology

RA return on investment

Workshop: Context Analysis

Workshop: Design Requirements Analysis

Workshop: States & Modes Analysis

Workshop: Parsing Analysis

functional analysis

other analyses

value modeling

4. PHYSICAL DESIGN (PART A)

technology and innovation in solution development

designate configuration items

5. LOGICAL DESIGN - MBSE IN THE SOLUTION DOMAIN

functional design – why do it?

state-based design – why do it?

Workshop: Architecting a system using MBSE

behavior modeling in general,

languages - proprietary, OPM, SysML

6. PHYSICAL DESIGN (PART B)

interface engineering

object-oriented design

7. EFFECTIVENESS EVALUATION, DECISION & DESIGN OPTIMIZATION

approaches: AHP, MAUT, QFD

using a value model -

conducting a trade- study

pitfalls

8. REQUIREMENTS SPECIFICATIONS

requirement specification types and their roles

criteria for structuring a requirements specification

9. SYSTEM INTEGRATION

influences on successful system integration

nine alternative integration strategies

10. VERIFICATION AND VALIDATION

requirement reviews

principles of design review

Architectural Design Review (ADR)

Detail Design Review (DDR)

requirements satisfaction audits (FCAs)

design description (BS-BS) audits (PCAs)

system verification methods

11. ENGINEERING MANAGEMENT

planning

integration engineering specialties

engineering team structure

management frameworks - Project Breakdown

Structure/Work Breakdown Structure (PBS/WBS)

managing configuration

managing interfaces

managing risk

12. IN CLOSING

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