

Fundamentals of Brownfield Systems Engineering

Moving from Greenfield to Brownfield – Systems Engineering with Legacy Systems

Summary

- Three-day course (customizable)
- Provides a systemic overview of how to move from Greenfield to Brownfield development projects, which evolve or transform legacy systems (vs. clean-sheet Greenfield development projects)
- Focuses on adjustments to the fundamental principles of Systems Engineering necessary when dealing with the unique aspects of Brownfield development efforts
- Follows the basic outline and conventions of the INCOSE Systems Engineering Handbook, ISO/IEC/IEEE 15288, and the Guide to the Systems Engineering Body of Knowledge (SEBoK)
- Practical information and tools are provided
- Includes several in-class exercises to solidify the concepts being presented
- Each student will receive a complete set of lecture notes and an annotated bibliography

What You Will Learn

- The key characteristics of Brownfield development efforts
- How to effectively plan and manage a Brownfield development effort
- How Brownfield development affects your requirements and design
- How to effectively integrate your systems in a Brownfield development environment
- Effective verification and validation in a Brownfield development environment
- The latest Brownfield lessons learned

Instructor – David D. Walden, ESEP

- An internationally recognized expert in the field of Systems Engineering
- Over 30 years of industry experience
- Taught over 100 courses to over 1600 students since 2006
- INCOSE Expert Systems Engineering Professional (ESEP)
- Senior Member of the IEEE
- Lead Editor of the INCOSE SE Handbook Fourth Edition
- Education
 - MS in MOT, University of Minnesota
 - MS in EE & CS, Washington University in St. Louis
 - BS in EE, Valparaiso University



Course Outline & Topics

1. Brownfield Concepts and Principles. Key Brownfield Concepts. Brownfield Development Compared and Contrasted with Greenfield Development. Key Challenges and Expected Benefits of Brownfield Development. Brownfield Lessons Learned.

2. Brownfield Influences on Requirements Development. Tailored and New Approaches to Requirements. Stakeholder Requirements and Measures of Effectiveness. System Requirements and Measures of Performance. Flow Down of Requirements to Brownfield Systems.

3. Brownfield Influences on Architecture and Design. Architecting Principles. Architectural and Design Strategies for Brownfield. Supporting the Inherent Constraints of the Legacy Brownfield Systems. Dealing with the Unique Interdependencies of Overlapping Brownfield System Lifecycles. Support for Ongoing Change and Evolution of the Brownfield Systems.

4. Brownfield Life Cycle Considerations. Reliability, Maintainability, Availability. Supportability/Logistics, Usability/Human Factors. Training. System Safety. Security/Survivability. Producibility/Manufacturability. Changeability. Commonality. Interoperability. Affordability. Disposability/Sustainability.

5. Brownfield Influences on Integration and Test. Integration, Verification, and Validation Approaches in a Brownfield Environment. Strategies for Dealing with the Independent Nature of the Brownfield Systems. Acceptance of Brownfield systems.

6. Brownfield Influences on Technical Management. Planning, Monitoring, and Control. Risk and Decision Management, Configuration and Information Management. Course Wrap-up.

Typical Course Duration - 3 Days
Typical Schedule 8:30am-4:00pm

Earn up to 18 INCOSE PDUs!

Please contact Sysnovation for availability, customization, and pricing.