

# Systems Engineering Tool Belt

Hands-On Application of Tools Every Systems Engineer Should Know

## Summary

- Two five-day courses (customizable)
- The Fundamentals course introduces tools that can be accomplished with Microsoft Office
- The Advanced course uses specialized commercially available Systems Engineering tools
- Provides hands-on exercises of essential Systems Engineering tools and techniques that help the Systems Engineer move from theory to practice
- Follows the terminology 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

- A set of Fundamental Systems Engineering tools
- A set of Advanced Systems Engineering tools
- How to effectively use Systems Engineering tools
- When and where to apply the tools
- How to use Systems Engineering tools to develop and evolve a balanced system solution that takes into account downstream life cycle activities
- The latest Systems Engineering tools 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



## Fundamentals Course Outline & Topics

**1. Systems Engineering Review.** Brief Introduction to Systems Engineering. Systems Engineering Fundamental Maxims. Introduction to the Systems Engineering Tool Belt.

**2. Fundamentals SE Tool Belt:** For Each Tool:

- Tool Introduction
- Tool Purpose, Description, Application, and Limitations
- Hands-on Student Exercises
- Lessons Learned Applying the Tool
- List of References for Exploration and Future Use

**3. Course Wrap-up.** Benefits and Limitations of the Systems Engineering Tool Belt. Wrap-up.

## Advanced Course Outline & Topics

**1. Systems Engineering Review.** Brief Introduction to Systems Engineering. Systems Engineering Fundamental Maxims. Introduction to the Systems Engineering Tool Belt.

**2. Introduction to the Formal Tools.** Brief Introduction to the Commercially Available Systems Engineering Tools Used.

**3. Advanced SE Tool Belt:** For Each Tool:

- Tool Introduction
- Tool Purpose, Description, Application, and Limitations
- Hands-on Student Exercises
- Lessons Learned Applying the Tool
- List of References for Exploration and Future Use

**4. Course Wrap-up.** Benefits and Limitations of the Systems Engineering Tool Belt. Wrap-up.

**Typical Course Duration – 5+5 Days**  
**Typical Schedule 8:30am-4:00pm**

**Earn up to 60 INCOSE PDUs!**

Please contact Sysnovation for availability, customization, and pricing.