Course ID
SYSENG
Course Duration
2 days

Course Title
Systems Engineering: An Intermediate Tutorial and Workshop

Related Courses

- Thinking Out of the Box: A Systems Engineering Imperative (OUTOFBOX, 2 days)
- Root Cause Analysis of Systems Failure: A Comprehensive Workshop (RCFA, 4-5 days)
- Root Cause Analysis of Component Failure: Understanding Human and Engineering Factors for Improved Product Performance (RCFA-ME, 2-4 days)
- Principles of Software Engineering (SWENG1, 2 days)
- Software Engineering: An Advanced Tutorial (SWENG2, 3 days)
- Software Project Management (SWPM, 2 days)
- Project Management Workshop (PROJMGT2, 2 days)
- Project Management: A Comprehensive Course and Simulation (PROJMGT5, 5 days)
- Succeeding at Technical Management: Do's and Don'ts for the Technical Manager (DOS&DONTS, 1 day)

Aimed At

Working engineers who wish to enhance their "systems thinking".

Group Size

5-25

Prerequisites

While there are no formal course prerequisites, this course assumes a couple of years of prior experience in designing and building systems, large or small.

Course in a Nutshell

Systems Engineering is a disciplined, well-defined approach to the design and construction of large-scale systems. It has been embraced by both the Government and the Industry as they continue to look for improved system performance within the budget and schedule constraints. As we move toward more complex, integrated, technology-based solutions, there is growing demand for the engineers with "systems" skills. They also represent the talent reservoir that many of the future managers and leaders will come from.

In this tutorial/workshop, you will learn the key concepts and skills of systems engineering including the systems approach, elements of systems engineering, requirements engineering, system architecting and analysis, software engineering,

acquisition perspectives, and select advanced topics. You will also participate in group problem-solving sessions that will provide you with the opportunity to practice some of the important techniques of systems engineering.

Customize It!

We can customize the course to your specific project requirements, usually at little to no added cost. The course can also be taught at a higher/lower level or expanded/shortened to suit the audience backgrounds and needs.

Course Outline

- Introduction
  - What is Systems Engineering?
  - The Systems Approach
  - Standards
- The 30 Elements of Systems Engineering
  - Overview of Each Element
- Requirements Engineering
  - Problems and Solutions
  - Derived Requirements
  - Workshop Exercise
- System Architecting
  - A General Approach
  - DoDAF
  - Workshop Exercise
- Systems Analysis
  - Tradeoffs and Sensitivities
  - Modeling and Simulation
  - Workshop Exercise
- Software Engineering
  - What the Systems Engineer Needs to Know
  - Estimation and Measurement
- Acquisition Notions
  - The 5000 Series
  - What's Wrong and How to Fix
- Advanced Topics
  - Systems of System
  - Architecting
  - Systems Integration

- Systems Engineering Management

- Wrap-Up
  - Course Recap
  - Q & A and Evaluation

How You Will Learn

- A seasoned consulting engineer-instructor will present this course in interactive lecture/workshop format.
- Along with the lecture, we will use short workshop activities to help you practice the key concepts and techniques of systems engineering.
- You will receive a printed Participant Handbook which will help you remember and retain what you learned in class and apply it on your job.

Revised *Dec 2, 2008f*