



## Applied Space Systems Engineering

### A Practical Approach to Achieving Technical Baselines

#### Course Description:

This three to five day tailorable course examines the practical application of space systems engineering processes throughout the life cycle. The course is aimed at practical, hands-on application of systems engineering tools and processes that can be realistically applied within your project environment to produce effective space systems. Using a combination of lecture, interactive discussions and group exercises, the course presents a detailed review of 17 major systems engineering processes within three major categories: Design, Realization and Systems Engineering Management. A detailed end-to-end space system case study is used to translate theory to practice by illustrating detailed how-to examples for achieving and establishing each major technical baseline throughout the mission life cycle.

#### Course Objectives:

At the end of this course you will have the knowledge, tools and experience to enter any phase of the space mission life cycle and apply systems engineering processes to achieve practical results. You'll walk away with....

- Enhanced understanding of the big picture of space systems engineering processes and their application in the mission life cycle
- A detailed working knowledge of the practical steps needed to execute each of the 17 systems engineering processes
- Practical experience applying systems engineering processes to example space system problems
- Organized framework for future space learning—on your own, in academic courses, or other short courses

#### Who Should Attend:

Systems engineers, payload principle investigators, subsystem engineers or project managers involved in any phase of the space mission life cycle.

#### Course Materials

Each participant will receive:

- A complete set of course notes with copies of all slides used in the presentations
- A copy of *Applied Space Systems Engineering*
- TSTI Alumni status allowing on-line access to course materials and other resources

#### Testimonials

"Emphasis on the 17 processes improved my understanding of how they fit into the project life cycle." –NASA Engineer

"I think the course was of great value and beneficial to my career. I think the value was more realized after the course" –NASA Engineer

### Course Topics

- **Designing Systems**
  - Stakeholder Expectations and Requirements
  - Operations Concept and Mission Architecture Development
  - Technical Requirements Engineering
  - Logical Decomposition & Physical Solutions
- **Managing the System Engineering Processes**
  - Technical Planning
  - Interface Management
  - Risk Management
  - Configuration & Technical Data Management
  - Technical Decision Analysis
  - Systems Engineering Management Planning
  - Technical Reviews
- **Realizing Systems**
  - System Implementation (buying/building/re-using)
  - System Integration
  - System Verification & Validation
  - System Transition
- **Detailed End-to-End Case Study**
- **Hands-on Exercises**