Applied Space Systems Engineering

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Course Description

This 3-5 day tailorable course examines the practical application of systems engineering processes throughout the space mission life cycle. The course is aimed at practical, hands-on application of systems engineering tools and techniques that can be realistically applied within your project environment to deliver capabilities on time, in budget and with acceptable risk.

Using a combination of lectures, interactive discussions and group exercises, the course presents a detailed review of all major systems engineering processes within three major categories: Design, Realization and Systems Engineering Management.

A detailed end-to-end system case study is used to translate theory to practice by illustrating specific how-to examples for achieving and establishing each major technical baseline throughout the mission life cycle.

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 Technical Reviews

Realizing Systems

- System Implementation (buying/building/re-using)
- System Integration
- System Verification & Validation
- System Transition and DevOps

Detailed End-to-End Case Study
Hands-on Exercises

Who Should Attend

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

Course Materials

Each participant will receive:

- An e-copy of the course text
- A complete electronic set of course notes with copies of the slides used in the presentation

Course Objectives

At the end of this course you should be able to:

- Define key systems engineering terms
- Explain fundamental systems engineering principles
- Apply systems engineering tools and techniques to solve specific design, manage and realization challenges
- Develop relevant systems engineering artifacts for a given scenario that captures and communicates design, systems management and system realization decisions

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Contact: info@kispe.co.uk | Courses: www.kispe.shop