

# ***Reducing Space Mission Cost***

## ***2-Day Short Course List of Topics***

*Note: This course assumes that participants are working in space technology or are broadly familiar with the material contained in the traditional Space Mission Analysis and Design (SMAD) course.*

### ***What's the Problem? — the Dramatic Need for Space Mission Cost Reduction***

- The need for cost reduction
- Nobody starts out to create a high cost, overrun, overdue, failure-prone mission
- The benefits to society and aerospace of mission cost reduction

### ***Overview of Mission Cost Reduction***

- The traditional approach to reduced budgets
- Is cost reduction real?
- Current examples of dramatically lower cost missions
- Range of cost options
- The need to talk about real cost
- Advantages of small and large organizations
- Low Cost does not mean Low Reliability
- Why reducing cost is hard to do and how to overcome that
- Creating a Proactive Program to Reduce Mission Cost
- The key litmus tests for whether a change intended to control cost will be counterproductive and, instead, increase cost and schedule
- Summary of cost reduction approaches

### ***Process Changes to Reduce Cost***

- The government perspective on reducing cost
- Design-to-cost
- Radical techniques to reduce cost

### ***Mission, System, Technology, and Business Changes to Reduce Cost***

- Mission and system engineering are critical
- Key technology changes to reduce cost
- Business and procurement changes to reduce cost

### ***Cost and Schedule Overruns***

- Why do they occur?
- What can be done to avoid or minimize them?
  - Technical solutions
  - Programmatic solutions
  - Government solutions
- Counterproductive approaches

### ***Implementation Strategies and Problems***

- Techniques applicable to all programs
- Reducing cost in new missions
- Reducing cost in ongoing programs
- Problem areas in implementing dramatic cost reduction

### ***Responsive Space***

### ***Summary — The Two Broad Approaches to Reducing Mission Cost***

### ***Supplements (used throughout the course)***

- Money
  - The time value of money
  - Amortization
  - Learning Curves
- The Iridium experience
- Methods for reducing launch cost
- Advantages and limits of cubesats and nanosats

