Basic Overview of Project Management and Life Cycle

ACES Presentation
T. Gregory Guzik
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The Two End Points in a Project

Inspiration

Operation

A miracle occurs
Some consider planning to be miraculous

Why do planning?
- Time constraints
- Budget constraints
- Personnel constraints
- Physical Constraints
- Flight Constraints
- Any and all of above

Provides structure to “think the problem through” increasing likelihood of project success
Purpose of Project Management

- Ensure meeting the project objectives within the allocated schedule & budget
  - Communication
  - Meetings
  - Reviews
  - Authorization
  - Record Keeping
  - Monitoring (testing)
  - Interface Control
- Not for assigning blame (usually)
Example Management Flow

ACES Program

Team Lead

Science Lead

Payload Lead

Flight Segment

Business Lead

Ground Software

Science Payload

Flight Software

Integration & Testing

Data Analysis

Interface Control

Mission Ops

Procurement

Spacecraft Integration

Accounting

Results

Mission Ops
The Project Life Cycle

Phases that all projects go through from inception to completion

DESIGN  PDR  DEVELOPMENT  CDR  FABRICATION  INTEGRATION  OPERATION  FRR  TESTING
The Design Phase

“Paper” study of all issues including the following:

- Define Objectives
- Understand Constraints
- Identify all subsystems & interfaces
- Design hardware
- Identify parts, costs & availability
- Determine personnel needs
- Establish schedule
- Develop plan to achieve objectives
Preliminary Design Review (PDR)

- Organized by the ACES Program
- Results from your design phase
- Should show that you have “thought the problem through”
- Include written report and oral presentation
- PDR reviews will occur on Feb. 27, 2003
- More on PDR next week
The Development Phase

Detailed in-depth study including
- Test hardware concepts by prototyping
- Finalize designs
- Purchase long lead items (identified at PDR)
- Establish interface controls
- Complete fabrication plan
- Finish integration & test plans
- Complete operations & data analysis plans
Critical Design Review (CDR)

- Organized by the ACES Program
- Results from your development phase
- Determines whether you are ready to begin building your payload
- Include written report and oral presentation
- Precise date should be identified during PDR
Payload Construction Phases

- Parts procurement
- Fabrication
  - Construct subsystems, test, fix, retest
- Integration
  - Assemble subsystems, test, fix, retest
- Testing
  - Payload qualification testing, fix, retest
Flight Readiness Review (FRR)

- Organized by the ACES Program
- Results from your construction phase
  - Particularly qualification testing
- Determines whether you are ready to participate in launch operations
- Include written report and oral presentation
- FRR will occur on May 1, 2003
Operations & Analysis

- Interface with launch team
- Prepare payload for launch
- Monitor during flight
- Collect & analyze data
Program Schedule Constraint

Design 1/21 – 2/26

PDR 2/27

Development 2/28 – 3/26

CDR 3/27 (flexible)


FRR 5/1

Operations 5/18 – 5/22
Other Project Constraints

- **Budget Constraint**
  - $500 per team

- **Personnel Constraint**
  - 3 members per team

- **Physical Constraint**
  - Weight 1 kilogram
  - 10 cm x 10 cm x 10 cm or “Coke can” size

- **Flight Constraints**
  - Shock, Thermal, Duration, Altitude