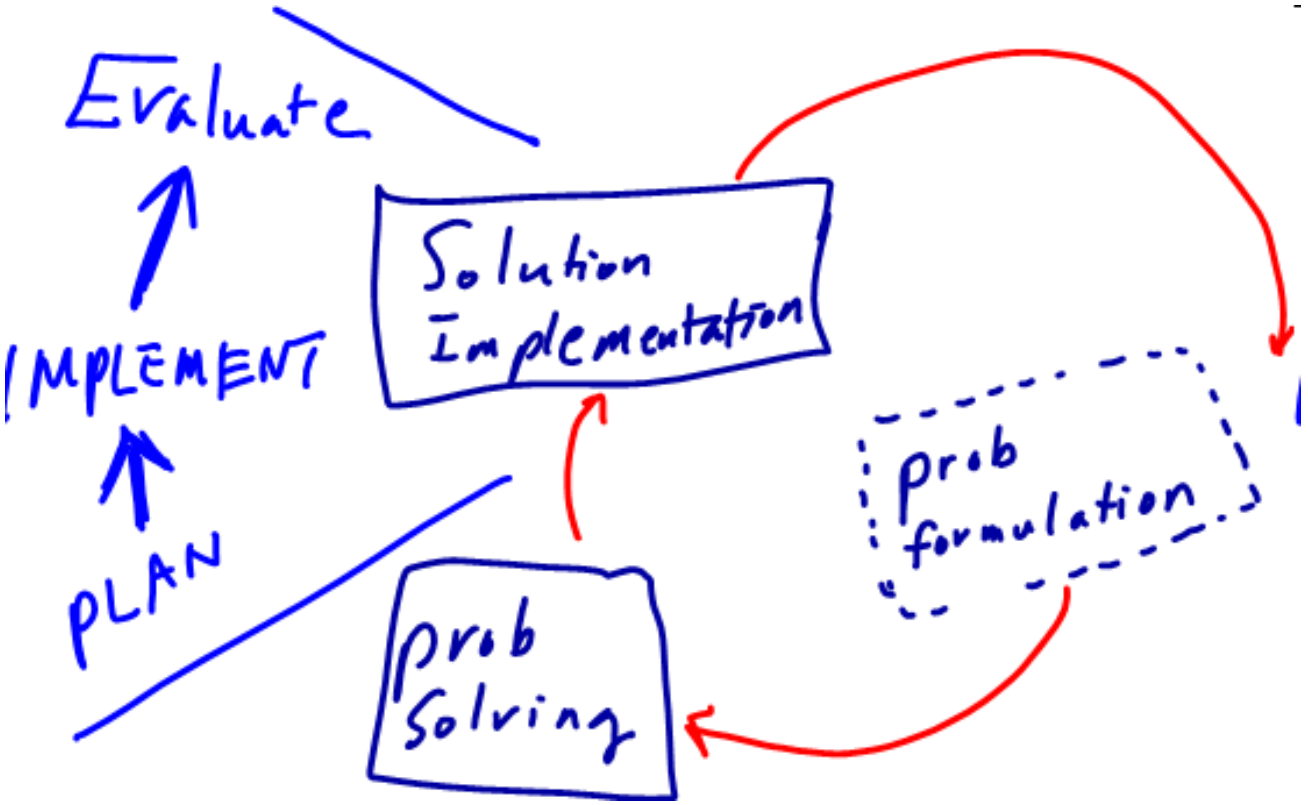
Implementation and Evaluation Planning



Paper Design Into Reality

Today's Objectives

- Steps of Solution Implementation
- Consideration for Implementation Planning
- Elements of Good Test Plan
- Strategy for Evaluation
- 3 C's
  - Commitment
  - Communication
  - Coordination
- QCD: Key performance indicator
  - We go by
  - **DQC (Delivery – Quality – Cost)**

PLAN

- **What's Involved**
  - **Conversion of Paper Design into Reality**
  - **Make sure the implemented design meets the deign requirements ("Quality")**
  - **Efficient Process to do the work ("Delivery")**
- **PLAN**
  - **"A road map to a goal"**
    - **Outline the navigation route**
    - **Coordinate efforts**
  - **Manage the key resources**
    - **Time**
    - **Personnel**

Components of Implementation Plan (IP)

- **TIME**
  - Details of Tasks to be executed
  - The Order the Tasks to be done
- **PERSONNEL**
  - Who will work on which tasks
- **Mutual Understanding** of the PLAN
- **Focus**
  - Produce (implement and **deliver**) high **quality** product **economically**, **environment-friendly**, etc

Implementation Planning

- 1: DETAIL
  - You can and should be very detailed with your plan
  - Instead of “construction”
    - Breakdown to much smaller tasks;
    - “order motor”, “manufacture brackets”, “align optical components”
  - Instead of “Coding”
    - Breakdown to much smaller modules;
    - “module A”, “subroutines”, “objects”
  - Timeline
    - Gant Chart
    - Spreadsheet
    - Project

Implementation Planning -continued

- 2: “x3”
  - Everything takes longer than you think – even if you think it will take longer than you think.
    - Parts will not arrive when promised by suppliers
    - Building parts yourself will take longer than expected
    - Software coding takes much longer than you think
  - Rule of Thumb
    - (estimated time) x 3
    - Time estimation is learned only through experience
- 3A: Risk Management
  - Risk identification
  - Risk Monitoring and Control

Implementation Planning - continued

- 3B: “SQUARE 1 ?”
  - What if you don’t have enough time or people to complete the project?
    - Should have been figured out before
    - Iterate back and reconsider your design
    - Consider a small tweak to save time

Evaluation Plan (EP) ("Test Plan")

- Procedures to evaluate a design against all of the design requirements
- **2 steps of assessment**
  - Analyses
    - Used when testing is prohibited and inspection is not enough
    - Tall building → scale model experimentation
    - Tank rupture → calculation of volume
  - **Tests (evaluation test plan)**
    - Experimentations with plastic hose instead of ……
    - Testing with Ch 9 broadcast
    - Test with blindfolded for obstacle detection and avoidance
    - Content checking faster?
    - Emergency situation announced with a set time?
- Write **Evaluation Plan (Test plans)** against the measurable/quantifiable design requirements
  - Clear
  - Unambiguous
  - **"Must be possible to hand the plan to someone not involved in the design project and have them successfully conduct the evaluation procedures"**

Evaluation Result – this is for final report

- Reporting Evaluation Results
  - The background and requirements
  - The exploration of concepts
  - The Final design
  - Results from Testing
  - Summary of the design's Performance of each requirement
- When Design Requirements are Not Met (reasons)
  - Inherent flaws in the design
  - Problems with implementation/manufacturing
  - Unexpected user behavior
  - Artificially restrictive design requirement
- Report what your evaluation indicates
  - Don't fudge data or ignore purposefully ignore some data to make your design look better than it is → Clear violation of engineer's ethical code
  - Documentation of deign steps would help in resolving the problem and explaining how you design a system that did not meet one or more requirements

I & E PLAN: Samples and What's Needed

- Implementation and Evaluation Report
- Implementation and Evaluation Presentation 1
- Implementation and Evaluation Presentation 2
- What's Needed is much smaller:
  - To save time
  - To give more time in actual progress
  - Sample Planning Example

Class Activity

- **Implementation & Evaluation Plan (I&E Plan)**
  - Rough I&E Plan (Today): Paper or Excel File
    - **Should be able to answer all kinds of questions regarding implementation and testing – grading point !!!!!**
    - **Comments will be sent for improvement**
  - **Assignment: Detailed I&E Plan (in Excel file):**
    - **DUE: Wed, FEB 15, 2012**
- **Class Schedule for Feb 2012:**
  - Feb 15, 2012: Lecture on Progress Reporting & Presentation
  - Feb 22, 2012 → "Make-Progress" Week
  - Feb 29, 2012: Progress Presentation