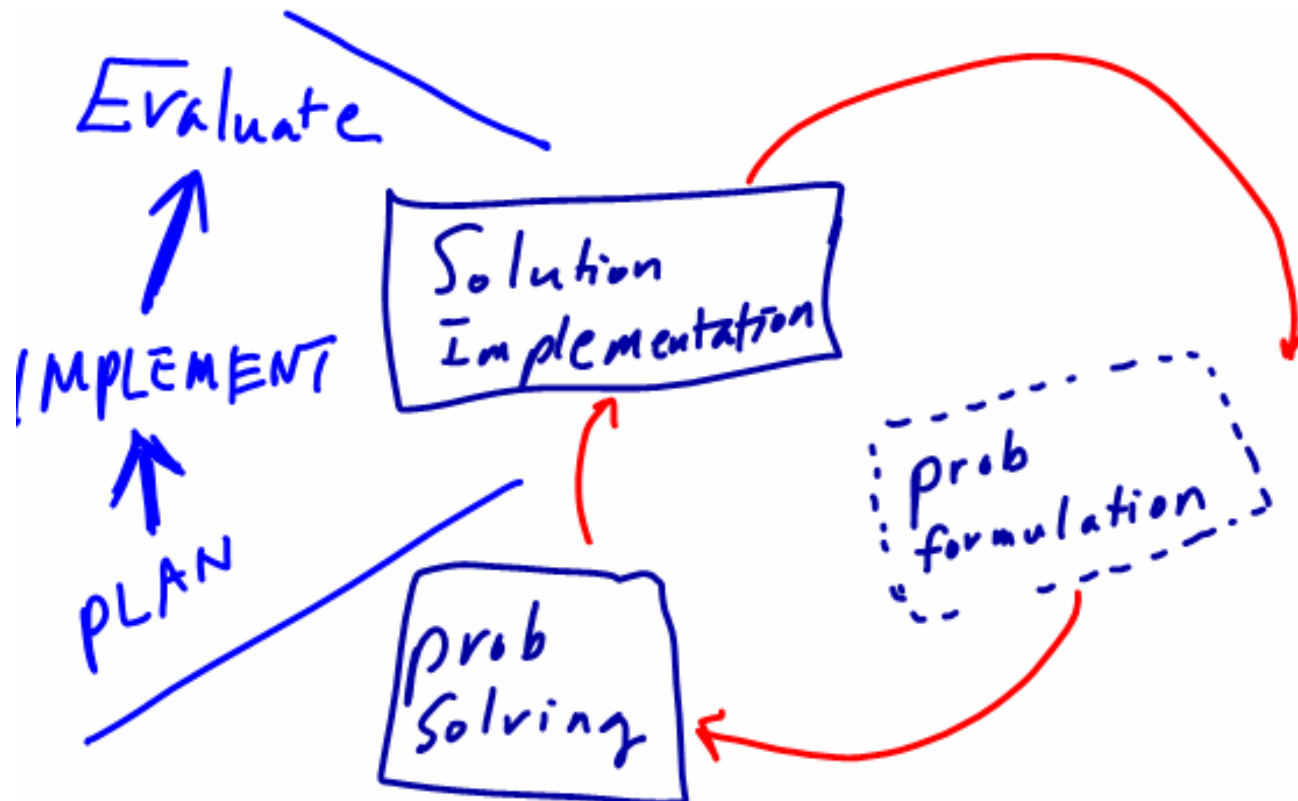


Solution Implementation



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 design 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
 - Experimentations
 - Dropping 2-liter container
 - Vital sign monitored and alarmed if above threshold?
 - 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 --- Must be included in the ECE presentation and final project report after ECE day

- 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 design steps would help in resolving the problem and explaining how you design a system that did not meet one or more requirements

Assignment and Schedule of Feb/March

- **Implementation Plan (IP) & Evaluation Plan (EP)**
 - Description & Presentation File (of IP and EP) Submission
 - by Tuesday, Feb10,2009
 - Class Presentation of IP &EP
 - on Wednesday, Feb12, 2009
 - New presenters and answers
- **Progress Reporting**
 - Progress Report & Presentation File Submission
 - By Tuesday, Feb 17, 2009
 - Class Presentation
 - On Wednesday, Feb 18, 2009
 - New Presenters & Answers

ECE Departmental Progress Reporting Event

March 11, 2009

- **Project Progress Review Panel**
 - **Contents**
 - The background and requirements of the project
 - Solution Generation and Top Design Selection
 - Implementation and Evaluation Plans
 - Progress Made and Current Status
 - Plan for next 4 weeks
 - **Report and Presentation File Submission: T**
March 10, 2009
 - **Presentation: W March 11, 2009**
 - **Reviewers –Faculty, Alumni Engineers, Industry Advisors**