Fall 2009, ENME 770/ENRE 648B
(Offered in the classroom and on the web)

Life Cycle Cost and Sustainment Analysis

Peter Sandborn
CALCE, Electronic Systems Cost Modeling Laboratory (ESCML)
Department of Mechanical Engineering
University of Maryland

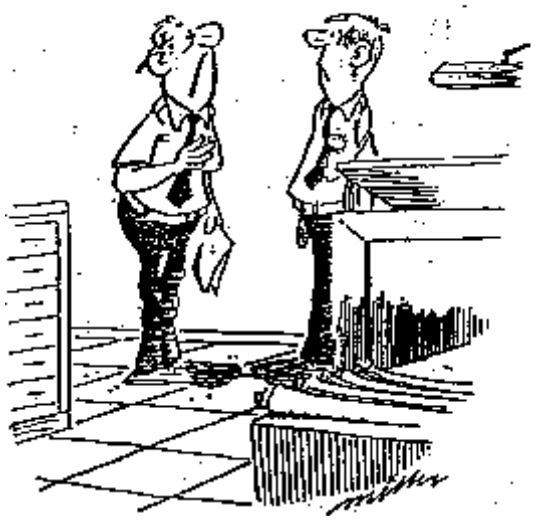
This course melds elements of traditional engineering economics with manufacturing process and sustainment modeling, and life cycle cost management concepts to form a practical foundation for predicting the cost of products and systems. Various manufacturing cost analysis methods will be presented including: process-flow, parametric, cost of ownership, and activity based costing. The effects of learning curves, data uncertainty, test and rework processes, and defects will be considered. Aspects of system sustainment including the impact on the life cycle (and life cycle costs) of reliability (warranty), maintenance (sparing and availability), environmental impact, and obsolescence will be treated.

This course will use real life design scenarios from integrated circuit fabrication, electronic systems assembly, and substrate fabrication as examples of the application of the methods mentioned above.

Introduction
- Basic concepts (cost, price, quality, yield)
- Overview of Engineering Economics

Manufacturing Cost Analysis
- Process-Flow Analysis
- Quality and Yield (defect models, producibility)
- Cost Of Ownership (COO)
- Activity Based Costing (ABC)
- Parametric Cost Modeling
- Test, Diagnosis and Rework Economics
- Learning Curves
- Uncertainty Analysis

Life Cycle Cost and Analysis
- Market Window and Schedule-Cost Tradeoffs
- Return on Investment (ROI)
- Design and Development Costs
  - Design Reuse
  - Software Development Costing
- Maintainability and Sustainability
  - Maintenance Policy
  - Sparing and Availability
  - Burn-in
  - Obsolescence
  - Warranty Cost Modeling
- Total Cost of Ownership
- Design for Environment
  - Life Cycle Assessment (LCA)
  - End of Life (EOL) – Disassembly and Salvage



I don't know how big it is …
I don't know what its made of …
I'm not sure how many I need …
BUT I NEED A REAL GOOD COST ESTIMATE