EE 4BI6 2010

Lecture 4 Product Specification

What are Specifications?

- Precise description of what product has to do
- Established early before technical, cost or time constraints are fully considered
- Result of identifying customer needs

Establishing Target Specifications

- Prepare list of metric or measurables that define the specifications
- Should be complete
- Metrics should be practical
- Should be compared to “what is out there”
- Set ideal and marginally acceptable target values for each specification

Setting the Final Specifications (I) Develop Technical Model of Product

- Determine technical feasibility
- Build or design prototypes to evaluate each concept and determine achievable specs
- Use computer simulation, Labview, Spice, CAD to determine if concept meets specs
- Break each technical model into subsystems and test each one.

Develop Cost Model

- Can product be built at target cost?
- In real industry development cost + manufacturing cost + distribution cost + reasonable profit = consumer price
- Large product run (thousands) means development cost has little impact
- Small product run means development cost plus “tooling up” become very important
- First cost estimate can be bill of materials with purchase or manufacturing cost
- Use bill of materials to compare concept costs
- Do not forget your time in estimating costs

Refine Specifications

- Use technical and cost models to develop final specifications.
- Consider trade-offs between costs and achieving target specs or between conflicting specs
- Plot or compare cost and value for specific metrics

Flow Down Specifications

- Complex products require overall specs
- Overall specs then applied to each subsystem
- Specifications for each subsystem must be consolidated to give overall specs
- Reflect on process – is product a winner or would it be better to change the focus or target market (e.g. home vs professional or business)