

Team Name: _____

Product Development Economics Document

1. ESTIMATING YOUR COST WITH BOM: Revise your Bill of Materials to include overhead at 25% of your material cost and assembly at \$10/hour. Use an estimate of assembly time and calculate a new, total cost for your product. Attach this document to this sheet.

Enter your new, total cost: _____

2. TARGET COSTING: Refer to the following equation discussed in class-

$$C = P \prod_{i=1}^n (1 - M_i)$$

*From Product Design and Development
by Karl Ulrich and Steven Eppinger
(McGraw-Hill/Irwin)*

C = your target cost to produce the product
P = price paid by the end user
n = number of stages in the distribution channel
M = desired gross margin

- Assume your product will be sold directly to the customer (n=1).
- Use the reasonable price for your product you received at the last review as P.
- Assume a reasonable margin of 20% for your product.
- Show your work and calculate your target cost.

Enter your calculated target cost: _____

3. Discuss in a paragraph a comparison of your BOM and target costs. Are the BOM and target costs similar? Very different? How similar or different? How might you change your design going forward in light of this information particularly if you were to commercialize your product?

4. Refer to the class discussion and perform a simplified break even analysis using your BOM cost from #1 as your variable cost, your price estimate from your customer (the P used in #2) as your price, and the amount of tuition paid by your entire team for this class as your fixed cost. Determine how many units of your product you would need to sell before you become profitable. Show your work and discuss in a couple of sentences how this might affect your design and development decisions if you were going to commercialize your product.