Design Project

OBJECTIVES

There are four main objectives to this project:

(1) Learn how to work in a group environment

(2) Design / Machining / Assemble a product

(3) Present your work effectively to your classmates

(4) Write a report covering the design, machining, and assembly of the product

In order to achieve these objectives we will follow this outline:

1. Organize yourselves into groups of 3 or 4 during your laboratory section. Your groups must consist of students from the same lab section.

2. Decide on a name for your company and the simple product that you will be producing.
   i. You must be able to produce the product using equipment and materials in the laboratory. If peripheral materials such as paints, fasteners, etc are needed then these are acceptable.
   ii. Keep the name of your company professional.
   iii. Simple products might be: a bookend, coasters, pencil holders, paperweights, etc.

3. Report to Prof. Leseman the members of your company, your company’s name, and product during regularly scheduled office hours the week of 3/24. (Milestone 1)

4. Design your product and render it in Pro-E, report to Prof. Leseman the week of 3/31. (Milestone 2)
   i. During your design consider
      1. Materials to be used
      2. Manufacturing processes – minimize the steps
         a. Flow of parts between machines
         b. Fasteners – can you do without any?
      3. Aesthetics
      4. Cost
      5. Products similar to yours that are currently on the market

5. Machine and assemble your product. (Milestone 3)
   i. Machine shop availability
      1. During your regularly scheduled labs
      2. Other times are possible, arrange with Mark and Fiona
6. Prepare a 10 minute presentation on your project in which all group members participate. Presentations are the week of 5/5, schedule to follow. (Milestone 4)
   i. Helpful instructions on how to prepare a presentation will be available online
   ii. Presentations are to include material on all work thru and including (5)

7. Prepare a report on your project. Reports will consist of 3 written pages minimum, with a 1” margin and Times New Roman font that is 12 point. Reports are due 5/7 in Prof. Leseman’s mailbox by 5pm ABQ Time. (Milestone 5)
   i. Minimally the reports will consist of:
      1. Design component
      2. Drawings
      3. Flow of the manufacturing process you used
      4. Assembly of the product
      5. Estimate of the cost
      6. Comparison with other products on the market
      7. Determine a mass manufacturing process for your product
         a. All materials are at your disposal
         b. All machining methods are at your disposal
         c. Keep manufacturing processes to a minimum
         d. Keep costs to a minimum
   8. Use an outline
   9. Break the report into components
      a. Assign each individual a task
      b. Meet to discuss findings / write-up
      c. Seamlessly integrate individual contributions