IME 100: Interdisciplinary Design and Manufacturing

Coaster Project

Your Mission: To design and manufacture a coaster (25 points)

In pairs, you will design and manufacture coasters as per the specifications detailed below. Each student will design an individual coaster but we will manufacture them two at a time. Your design may be KU-inspired, co-op inspired, or just a cool design. **There is a special prize for selected coasters as judged by the Dean of the College**.

To begin, you must sign-up for a coaster group on Blackboard where you will maintain and submit documents. Each group member must sign up for the group.

Use Fusion 360 to design your coaster(s). You must be able to machine two parts at a time. Stock material is a 7 × 14 inches (7" the x-axis and 14" the y-axis) × ¼ inch (z-axis). It is up to you to make the design and layout. A top view of your drawing should be similar to Figure 1.

Your designs should ***not*** be overly complex. The estimated machining time must be less than 10 minutes (for both coasters).

Once you have completed the design, you will need to step through your Fusion 360 model to verify the datum, stock size, and estimated machining time (≤ 10 minutes for both coasters) on the **manufacturing setup sheet** generated by fusion. Once approved by the technicians, you will need to post-process and save your files on a blank USB stick. You can then proceed with your **manufacturing setup sheet** and USB to the manufacturing lab.

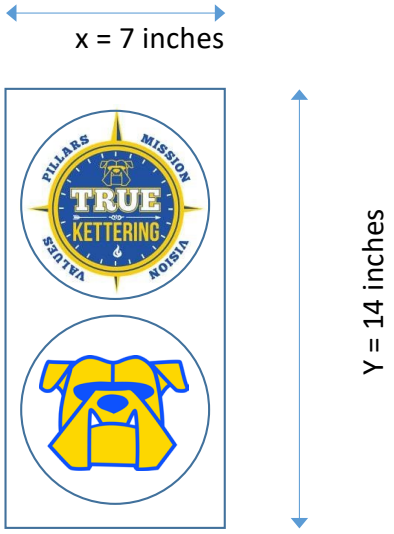

Figure 1 Coaster design showing the stock size and the two student designs

Deliverables:

Once manufactured, the items below will be turned in as a package. Convert google docs to pdf/office file before submitting. Blackboard does not recognize google docs.

1. A photo of your completed coaster [5 Points]
2. Manufacturing Setup Sheet (PDF) [5 Points]
   a. You may convert the HTML file by printing it to a PDF
3. Dimensioned Engineering Drawing [5 Points]
   a. All significant dimensions must be labeled
   b. Drawing units must be included
4. **Individual** Reflection [10 Points]

   Your individual reflection (~ 1 – 2 pages) should discuss what went well during the design/machining process and what did not go well during the design/machining process.
   - Post machining finishing operations (if any)
   - Any "false starts" should be documented, including source and resolution
   - Did the proposed and actual cycle times match? If not, what do you think explains the discrepancy.
   - Did the coaster resemble your model? If not, why not.
   - Figures showing screen capture of design, failed coasters, machining errors …

Overall project grades will be based on your reflection, the quality of your coaster, and the thoroughness with which you completed the design and manufacturing (reflected on your coaster photo and setup sheet).

The deliverables are due on Blackboard, Friday of Week 5