Lab Assignment #7 – Creo, 3D Printer Training, & PDS ME170

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Date Due: One week from Start Day of Lab (turn in deadline – 11pm night before next lab)

Before Beginning the Book's Exercises

- Ensure that your working directory is set to your "ME170" folder on the desktop.
- Remember to add your NetID to all new part files. The book will ask you to create a part named '4455-001' for example. Be sure to add your NetID to the part file name: "<netid>_4455-001".
- Use the "170startpart.prt" to create all new part files.
- Reorient your sketches using the "Sketch View" button.
- Ensure that the sketch orientation in Creo's sketcher matches the book's sketch orientation. Use "Sketch Setup" to adjust the orientation. Instructions for altering the sketch orientation can be found in Lab#6.
- Save often throughout the exercise.
- Recall that you can set the "orientation" configuration option to "isometric" so that your "Standard Orientation" matches the book's. Instructions for this change can be found in Lab#6.

Part I. 3D Printing Training

In preparation for Lab #9 "Creative Part" exercise, you will need to receive training on using the 3D Printers in the MechSE Innovation Studio. Your TA will split the lab up into sections and provide 15 minute training sessions in the studio. This training is **REQUIRED** and will enable you to use the innovation studio printers, not only for your Lab #9 exercise, but also for future 3D printing needs.

Part II. Complete Exercise 4 (Tasks 10-16) (pg 116-124)

The goal of this exercise is to become familiar with editing and regenerating part models.

Task 11

- Carefully note the dimensions on pg 118. Note that on one side the 3.80 and 4.00 dimensions reference the existing rectangle, not the new sketch.

Task 12

- Ensure that all dimensions AND constraints are strong before confirming the sketch.

Part III. Complete Exercise 5 (Tasks 1,2) (pg 132-133)

The goal of this exercise is to become familiar with editing and regenerating part models.

Part IV. Complete Exercise 6 (Tasks 1-4) (pg 147-151)

The goal of this exercise is to become familiar with creating datum features.

Task 2

- The selection filter is the drop-down menu in the bottom right-hand corner of Creo. The default selection filter is "Smart." The selection filter does what its name implies; it limits or filters available selection options to those within the selected category. This tool is very useful when working with large, complex parts.

Part V. Complete Exercise 10 Tasks (1-3) (pg 231-234)

The goal of this exercise is to become familiar with creating engineering features.

Part VI. Complete PDS for Term Design Project

Create a Product Design Specification (PDS) for the team-selected product concept. Create a WORD document with all 29 of the primary elements as numbered sub-headings: i.e. 1.Performance, 2.Environment, 3.Service Life etc. Under each heading create a set of bullets each, ideally, with one or more measurable specifications of actual values with units. For example, under WEIGHT, you may have a couple of bullets:

12. WEIGHT
    - The weight should not exceed 12lbs
    - For stability in a rugged environment the weight should be at least 4lbs

Depending on your product, you will have different bullets and different data values. These are design goals or targets for your product and these are decisions you should make as a reasonable guess. You should do some research online using product sales sites such as Amazon.com to find typical PDS items and values for your particular product (look for Product Details, or Specifications).

Part VII. Submission Requirements

1. Create a zip file named " <netid>_lab7.zip" with the following files. Submit it for grading through the my.mechse website. Be sure to include the latest version of each part.

netid_4455-002.prt.#
netid_4455-004.prt.#

netid_4455-005.prt.#
netid_4455-006.prt.#
netid_4455-007.prt.#
netid_4455-008.prt.#
netid_4455-009.prt.#

2. Submit your PDS for grading through the my.mechse website. One member of the team should submit a file with the following file name format:

Team#_PDS.docx