

Three-Dimensional Modeling, IET-265 Name: _____

Winter 2013, Week 6

In Class Evaluation (ICE)

Day and date: _____

Meter Window, Meter Assembly with modifications, 4Bar Linkage Assembly, Assembly Model

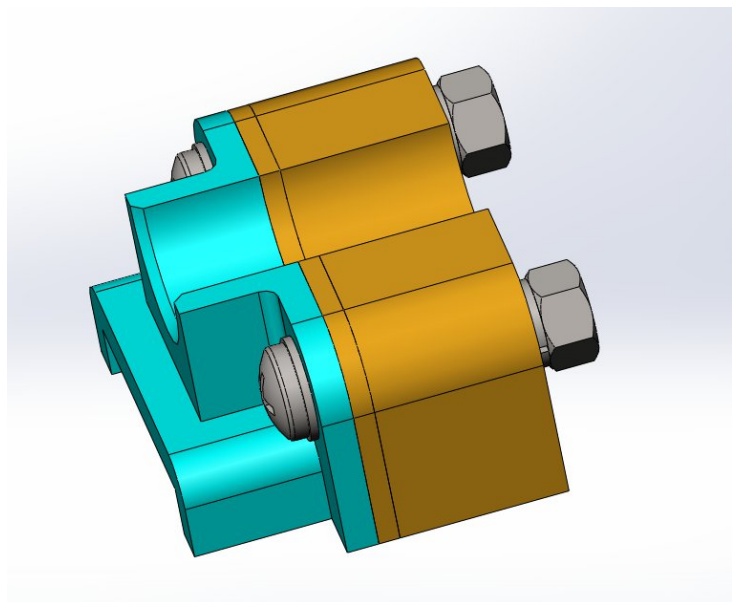
70 points total

The *Regulator* (20 pts) use the engineering drawing to model the Propane Gas Regulator Housing. I would suggest modeling in this or similar order: Circular Base, Back Extension, Fillet, Bottom Tube (tangent to the top plane and below it), Bottom Tube Boss, Bottom Tube Hose Extension, Bottom Tube Mirror, Top Tube, Top Tube Riser, Hole Wizards.

- Completeness with symmetry, notice the location of the Origin. (4pts)
- Material Aluminum 1350 Alloy (1pt)
- Correct starting plane, front (1pt)
- Base Feature, 2.5" circle, Mid Plane Extrusion at 3/8" (1pt)
- Fully defined sketches with dimensions (2pts)
- Hole Wizard in Bottom Tube, Hole, ANSI Inch, 3/16" Fractional Drill Size, Through All (2pts)
- Hole Wizard in Top Tube, Straight Tap, ANSI Inch, 1/2-20 Bottoming Tapped Hole, Blind at 1" with threads at .75" (2pts)
- Rename your features (not Hole Wizards or fillets) (2pts)
- Find the Mass, precision at 4 units after the decimal (2pts)
- Find the Center of Mass at 4 units after the decimal (3pts)
- Extras and errors

Bearing Plate Block Assembly (20pts)

- Complete with all of the parts (3pts)
- Take the unsymmetrical parts and make them symmetrical (3pts)
- Rename the *Bearing Block* part to *Bearing Block New* (1pt)
- *Bearing Block New* part fixed to the origin and on top of the Feature Manager Tree (2pts)
- Modify the *Bearing Block New* part so that the Hole Wizard Holes match the options in the *Bearing Plate* (2pts)



- Install or redefine the mates for the *Bearing Plate* assembly fasteners to the back of the *Bearing Block New* part in the new assembly (2pts)
- Lengthen the *Pan Cross Head* bolts to be just short of the back of the *Hex Nut*. Enter that Length here _____ (2pts)
- Components properly mated with the Bearing Plate in the middle and everything fully defined including fasteners (5pts)
- Extras and errors

Assembly Model (30pts)

Assemble the 3 or more parts of your design into a SolidWorks Assembly. Mate these using the requirements listed below. The parts in your assembly, other than the base, must be able to move, rotationally or translationally (like a machine). Apply mates to achieve these functions.

- Parts need:
 - Fully defined sketches.
 - Symmetry in construction if the model appears symmetric about a plane or multiple planes or axes
 - To have a round or rectangular hole(s) or slot(s) or an extruded boss(es) for use as a reference for the insertion of additional parts
 - Hole Wizard holes in the base for mounting to some external structure.
- The assembly needs:
 - Fully defined components except for the parts that need to move.
 - At least 3 different Items from the Toolbox inserted in multiple locations.
 - Insert a Limit or Screw Mate or an Advance or Mechanical Mate of your choosing.
 - Explode View configuration.
 - Exploded Line Sketch for all components.