Engineering Drawings and GD&T Workshops

**Due Date:** 10 AM, September 29, 2021. Submit a single PDF of all requested pages (This can be done using applications like adobe acrobat, preview (mac native) or printing and scanning). In addition, be prepared for oral quiz during lecture and lab on September 29, 2021.

**Assignment Intent:** Discuss more than just the SolidWorks Video Game. For example, explain the various symbols; understand and discuss if a drawing is fully defined; understand datums, and GD&T symbols, etc.

**Solidworks Tutorials**

To access the tutorials that you need for this assignment, open Solidworks and navigate to the help menu and select "SOLIDWORKS Tutorials". Once you have done this a window will appear. At the top of that window are multiple tabs, select the "All Solidworks Tutorials" tab and then select "Lesson 3: Drawings", "Advanced Drawings", and “DimXpert Tutorials” to answer all parts one through three of the assignment.

1. Lesson 3 – Drawings
   a. Print the final drawing you made while following the tutorial (do not do any additional dimensioning or tolerancing other than what the tutorials teaches you to do). Identify three reasons why the drawing does not fully define the part.

2. Advanced Drawings
   a. Print your drawing of the switch like part in the “detailing” section of the tutorial. Sketch in pen on your drawing the bounds that represent where the surface defined by the perpendicularity tolerance with respect to Datum A can reside.

3. DimXpert Tutorial --- Note: this tutorial teaches you about the auto-dimensioning functionality. Be careful in the future using the auto-dimensioning functionality. Usually the dimensions you end up with are correct in the sense they fully define the part, but not practical when it comes to manufacturing the part. Machinists commonly complain about drawings produced solely with the auto-dimensioning scheme and no common sense. Review what you get from the video game and adjust accordingly.
   a. Screen print the “turned” part. If the datum “B” is manufactured at exactly nominal, what is the diameter of the perfect cylinder that the datum’s central axis must lie within.
   b. In the final product, there is a dimension “14XR0.13”. What does that refer to? Does it make sense physically? How about from a manufacturing/performance standpoint?
**Sliding Fit Problem\(^1\)**

Two identical components are to be assembled together to give a close sliding fit \((RC1)\). When assembled the interior faces of the links should be held \(1/8\)" apart with a tolerance of \((+0.005\)\("). Model this part and create a fully-dimensioned and properly tolerated detail drawing of the component (part) only, which if I hand to a machinist and ask for two will return to me parts that meet the design intent. Print and turn in this drawing.

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