Group Project Submission
EN1740 - Spring 2012
Due: May 8

Objective

The objective of the group project is to apply the design tools studied in the second half of the semester to fill out the design of a low-cost wind turbine. Each design group will focus on a separate sub-system of the wind turbine. The objective of the project is to: design or complete the design of the components in the sub-system, document each component (i.e. create an engineering drawing), perform a tolerance analysis critical to the function of the sub-system and verify some portion of the sub-systems function with one of the design tools discussed in the second half of the course (mechanism, ABAQUS or other is OK, too, upon approval).

Submission

The completed project submission should include:

- Design Package:

  - Component models (*.prt's)
  - Associated drawings (*.drw's)
  - A top level assembly (*.asm)
  - Assembly drawing with BOM and balloons.
  - Drawings need only contain dimensions from tolerance stack-up and those critical to design analysis (input variables).
  - All dimensions shown require tolerance.

- Tolerance Analysis:

  - Create a report from the CETOL analysis (right click in the Measurement Table > Create Report > Print to pdf).
  - Make sure assembly has CETOL analysis saved with it.
  - Provide a BRIEF description of what the tolerance stack-up is analyzing (i.e. what is the design criteria).
  - *It is strongly encouraged to include some GD&T element in the tolerance stack-up.*

- Motion Analysis (if performed):

  - Create an archive containing the assembly with the motion analysis and all the associated part files.
  - Make sure to save the motion analysis results set, so I can view the results with the playback tool.
  - A BRIEF discussion of what was analyzed and what was determined from the analysis.
  - *Make sure the assembly will open from the files in the archive!!*

- Finite Element (if performed):

  - Submit the .cae and .odb file and a screen grab showing a von Mises stress result.
  - A BRIEF discussion of what was analyzed and what was determined from the analysis.

- Animation: From wherever this is generate (either Finite Element or Motion Analysis) save the animation as a .mpg or .avi. Please make sure this can be opened with either Windows Media Player or Quicktime.

Grading

In keeping with the objective of project, the grading will focus on how well the design tools were applied and the level of insight they provide. Specifically, grading will be distributed around:

- Practicality (30%): Is the information provided by the analyses useful to a designer or engineer?

- Accuracy (30%): The results from the analyses should be correct within the stated assumptions.

- Presentation (30%): Overall appearance of project submission should be clear and professional, keeping in mind industry standards for presentation.

- Stretch (10%): The extent to which the group has attempted to go beyond what was presented in the lectures.