Practical Uploadable Problem Set # 8 *Build and Test the MCM*

Remember when doing this problem set:
- Problems must first be completed *individually*, and then *group effort* starts with peer review, then:
  - With your Peer Review Evaluation Partners and no talking, review each other’s work.
  - THEN discuss and make changes as needed.
- *It is important the teacher see the original work, the PREP comments and then any changes needed.*
- *All math should also be done with a spreadsheet or Matlab script, so you can easily play “what if”.*

**Problem (Opportunity!):**

Think of the drawings you just made for making parts and the assembly, and how you will put it together.

1. After having had the chance to ruminate on your design for a week, make any changes needed to update the FRDPARRC table, Error Budget, solid model and drawings.
2. Create a Bill of Materials, and make sure you have all you need to build. (1 pt)
3. Make the parts and measure and compare to the drawings. Did you achieve the desired tolerances? (4 pts)
4. Assemble the axis, and comment on did it go together the way you expected? (1 pt)
5. Measure performance and compare to that predicted (e.g., attach a laser pointed taped to “on” to the carriage and measure motion of the spot far down the hall…) (4 pts)
   a. Accuracy
   b. Repeatability
   c. Resolution
   d. Stiffness
   e. Update your predictive model accordingly