Activity 12:

Often times when specifying drawing dimensions, multiple tolerances are used to guarantee part functionality is met while avoiding tight tolerance on less critical features. For example, consider the sand casting shown in Figure 9.98 (pg 334). Machine surfaces and holes are necessary for alignment and mating purposes which means these features have tighter tolerances. On the other hand, cast surfaces and features (shown as shaded) have larger tolerances to allow these features to be left “as cast” which avoids expensive machining.

Required:

1. Model the part shown (Fig. 9.98)
2. Produce a detailed drawing using the following tolerances:
   a. Use limit tolerance for all dimensions
   b. All machined surfaces and features should have a tolerance of 0.004” (+/-0.002”). For the two 0.19” diameter holes, use tolerance for a LC2 fit (locational fit). Specify the required shaft diameter as a reference note underneath the hole dimension.
   c. All cast surfaces and features should have a tolerance of 0.030” (+/- 0.015”).
   d. Specify default tolerances in the drawing template:
      i. X.X  +/-0.1”
      ii. X.XX  +/-0.01”
      iii. X.XXX  +/-0.001”
      iv. ANGLES  +/- 0.5 DEG