Three-Dimensional Modeling, IET-265   Name: _____
Winter 2013, Week 10
In Class Evaluation (ICE)   Day and date: _____
Threaded Fastener, Spur Gear, Iron Pipe GD&T drawing, Final Project Part GD&T Drawing, 120 points total

Threaded Fastener (20pts)
- Correct starting plane (1pt) ring shank feature correct direction (1pt)
- Bolt Diameter (1pt), Length (1pt), Thread length (2pts)
- Head Chamfer (2pts)
- All features correct as shown (5pts)
- Sweep Profile (5pts) Helix pitch (2pts)
- Extras and Errors

Spur Gear (40pts)	Pinion	Wheel
• Do, Dp, Dr, (3pts)	I	
• Dpp, Db (4pts)	I	
• Ta (2pts)	I	
• Tooth Root Perpendicular (2pts)	I	
• Xc (1pt)		
• Significant digits (1pt)		
• Movement with Physical Dynamics (16pts)		
• Extras and Errors		

The *Iron Pipe GD&T Drawing* ED 5.7 (30 pts) Using the description below add the various Geometric Dimensioning and Tolerancing text and symbols to a new drawing of your Iron Pipe assignment from Week 9.
- B sized template, 1: 8 scale, printed full sized to scale and gray scale, typical precision (2pts).
- Insert the following views and Display Styles: Front - HLV, Right - HLR, Left Trimetric View – SWE (2pts)
- Section View horizontal cut on the Front View placed on top of the Front View at HLR (2pts)
- Detail View of the Profile of the Sweep Feature for the Gasket Profile (1pt) (show the sketch in this view and dimension it) (1pt) 1:2 scale (1pt).
- Views laid out with equal spacing between left - right and top - bottom (1pt)
- Appropriate dimensions (2pts) neat and orderly (1pt) Dimension layer (1pt)
- View Labels for each view (1pt) on Sheet Notes layer (1pt) CAPs, underline (1pt)
Add the following GD&T items:
- Put a Bilateral Tolerance 1" dimension for the Gasket Profile for values 2/1000" greater and 5/1000" less (1pt)
- Put a Symmetric Tolerance on the 3/8" dimension for the Gasket Profile for values of 3/1000" (1pt)

- Add a Basic Tolerance on the length of the pipe (1pt)
- Datum A on the axis that defines the center of the pipe in the Section View, show a centerline on this axis (1pt)
- Datum B on the left face of the flange in the Section View (1pt)

For the following items use your pocket guide to add various Feature Control Frames and Tolerances

- Add a Feature Control Frame and tolerance in a similar manner as shown for Flatness (Applied to a Feature of Size) of 0.10" Regardless of Feature Size referencing the two faces of the flange (2pts)
- Add a Feature Control Frame and Limit tolerance (of no more than the nominal value but can be less by 3/1000") in a similar manner as shown for Cylindricity (Applied to a Feature) for the inside pipe diameter with a variation of 0.1" (2pts)
- Add a Feature Control Frame in a similar manner as shown for Perpendicularity (Applied to a Cylindrical Feature of Size) for the inside pipe diameter with a variation of 0.05" at the Most Material Condition referencing Datum B (you can stack this with the previous FCF. (2pts)
- Add a Feature Control Frame and Bilateral tolerance (of no more than the 5/1000" more than the nominal value and can be less by 10/1000") in in a similar manner as shown for Total Runout (Applied to a Diameter) for the outside diameter of the flange of 0.04" Regardless of Feature Size referencing Datum A . (2pts)

Final Project Part GD&T Drawing (30 pts)
From your Final Project chose a part of your choice and create a new drawing.
- B sized template, proper scale (so that the part views just fill the drawing but are not so large as to overwhelm it), printed full sized to scale and gray scale, typical precision (2pts).
- Insert the various views and Display Styles minimum of 4 (3pts)
- Section View, Detail View or other view of your choice (need 2) (2pts)
- Views laid out with equal spacing between left - right and top - bottom (1pt)
- Appropriate dimensions (2pts) neat and orderly (1pt) Dimension layer (1pt)
- View Labels for each view (1pt) on Sheet Notes layer (1pt) CAPs, underline (1pt)

Add the following Geometric Dimensioning and Tolerancing items of your choice per the descriptions below (the GD&T items below must make sense).
- Add 4 dimensions with at least one representation of the 4 different tolerances that we discussed in class (5pts)
- Add 3 datums of your choice (2pts)
- Add 4 Feature Control Frames of your choice (8pts), the Feature Control Frame has to be completely filled out with material conditions referring to the appropriate datum. Refer to your guide book for guidance (they should be different from the *Iron Pipe Drawing).*