MET 107  
Homework 3 – MS Word Drawing  

Why:  
Quite often, an engineering project culminates with a written report which usually includes figures. As an engineer, your performance will be enhanced by learning different methods used to create figures for reports. Using MS Word drawing tools is one of the ways used. This activity supports course objective #1.

Learning Objectives:  
1. To use MS Word drawing objects to create technical sketches for inclusion in reports.  
2. Be able to use the snap and grid functions.  
3. Copy and group drawing objects.  
4. To align, distribute, rotate and flip objects and groups of objects.  
5. Use ordering and word wrapping.

Performance Criteria:  
1. Prepare neat and professional looking sketch.  
2. Proper sketch proportion.  
3. Be able to use duplicating features to work faster.

Getting Ready:  
• Familiarize yourself with the Shapes available in the illustrations group under the Insert tab.  
• Pick the View Tab turn on the Gridlines in the Show/Hide group  
• Create a singular line from the shapes box. With this line active, Set the Grid settings under the Align options in the Arrange group listed under the Format Tab to the values in the dialog box as shown to the right. Your snap will be .06 inches and the gridline will be displayed every four units. You will see a .24 x .24 grid on your sheet.
PLAN:

1. Add a header on the right side to include your name, MET 107.n, HWK 3 and the date.

   **Use text** (not text boxes) to identify each of the following problems:

2. Draw the figure shown below using the LINE tool. The number indicates the length of the side in grid blocks. Draw the figure a second time using the FREEFORM tool which is found in the **Lines** menu. The line width for the second one should be 1.5 pt. and the Freeform should be filled with a yellow color.

   ![](image1.png)

   1st Time with the Line Tool

   2nd Time with the Freeform Tool

   You don't have to include the red text in your document.

3. Draw two concentric circles. The outer one is one-inch nominal (4 blocks) diameter and the inner one is .75 inches nominal (3 blocks). Use the alignment tools to center them with respect to one another.

   ![](image2.png)

   Right-click on an object under the Drawing Tools Format Tab select the box with the arrow (lower right corner) to open the formatting dialog box. Select the Size tab and you can specify an exact size to two decimal places.

   The majority of shapes in Word 2010 are filled by default. You will have to specify No Fill under Shape Fill.

4. Draw a circle having a diameter of .96-inch (one inch nominal). Copy it and paste it four times to obtain five total circles. Align the circles horizontally, evenly spaced. There should be .96-inch (1-in nominal) spacing between the circles as shown in red. Be sure to use the align and distribute tools to do this.

   ![](image3.png)

5. Draw a **regular** hexagon having a .64 height. Copy the hexagon and align the copy horizontally with the first hexagon. Rotate the Free Rotate button while holding down the SHIFT key. Do not do #5, Word 2010 appears to have a bug relative to rotating the hex such that it is still a regular hex at 30 degrees.
6. Create the following figure:

![Figure with a circle and a rectangle with dimensions and notes.]

7. Copy the figure from number 6 and paste it below the original. Change the ORDER of the objects so that the rectangle is in front of the circle.

![Figure with the rectangle in front of the circle and a note about the order.]

8. Draw the figure on the left and copy it twice as shown (make use of the Group tool).

![Three copies of the figure with the rectangle in front of the circle.]

9. The ORDER tool is essential when creating the following figure. Use the FLOWCHART: OR symbol two times: one with no fill and one with black fill. You will also need two squares with white fill and no border line. Use 1" nominal diameter for the OR symbol. Stack and align the drawing objects to get the required symbol. Hint: Use of transparency is required when using Word 2007, not required for Word 2010.

![OR symbol with notes about dimensions and fill.]

Remember that you don’t have to include the red text in your document.
10. Create the following figure. Use a textbox for the dimension value. It will have no outline and no fill. The dimension textbox will be IN FRONT of the line.

1.5 pt wide line

.5 pt wide line

Settings for the arrows on the dimension line

11. Insert the dialog box as shown (Format Shape) into your document by opening it, then pressing Insert – ScreenShot. Change the Layout – Wrapping to “In Front of Text” and resize it to fit.

To access the dialog box select an arrow, then pick on the small Format Shape icon located to the right of Shape Styles in the Drawing Tools Format ribbon.

Note: As in the past you can access this dialog box by selecting the object and then right picking and selecting Format AutoShape.