Lesson Objectives:
- Create charts using MS Excel
- Format chart components

Charts:

MS Excel has the capability to create a variety of graphs. In Excel, a graph is referred to as a chart. Because they are the most commonly used graphs in engineering, we will be concerned mainly with XY (Scatter) (line graphs) and Column charts.

Charts are created by selecting the chart data from the spreadsheet, selecting on the Insert tab and then selecting the appropriate chart. Figure 1 shows the Insert tab. Charts can be saved as an object in the current spreadsheet or in a new sheet.

A chart is made-up of many parts. Figure 2 identifies all of the chart entities which can be formatted.
Notice that all the parts of the chart are identified in Figure 2. All of the entities making up the chart can be formatted. If a chart is selected, Design, Layout and Format tabs are active allowing you to format different elements of the chart.

Most of the choices are obvious once you inspect the dialog boxes for formatting chart entities.

Example 1: Using Excel, create a graph of x and y data. Note that the x values are not equally spaced, requiring the use of a scatter chart.

```
<table>
<thead>
<tr>
<th>Data Points</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>x values</td>
<td>y values</td>
</tr>
<tr>
<td>0.5</td>
<td>4</td>
</tr>
<tr>
<td>1.25</td>
<td>2</td>
</tr>
<tr>
<td>2.5</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>
```

The following steps were used to create the chart shown above.

1. Create a table of x-values in Excel
2. Select the x and y data values.
3. Select on the Insert tab then the Scatter button with Straight lines and Markers.
The chart is initially created as shown below.

![Chart Image]

Once the chart in this example was placed, the format of several items was changed. Selecting on the Layout tab allows the Chart Title, Axis Titles and Legend to be added (or removed). Gridlines were added. Right clicking on the X axis brings up the Format Axis option which allows the setting of tic marks as well as the definition of Axis Options. These options were applied in order to create the chart shown on page 2.

Many possibilities exist for formatting chart axes. Most of the steps used in this example apply to all the different Excel charts. Be sure to spend whatever time is necessary to learn the different options so you will quickly be able to create any type of chart.