



## Class Exercise Graphing in Excel

### Exercise Objectives:

The main purpose of this exercise is:

1. To demonstrate the graphing process in Excel.
2. To generate a proper engineering graph from a data set.
3. To apply standard graph labeling and titling techniques.

### Background:

Generating a graphical representation of a data set is a common exercise for an engineer. Presenting data in a visual format not only assists engineers to communicate with other professionals, but it also is an effective technique to recognize trends between system variables.

Generating graphs is very straightforward using Microsoft Excel software; however, a graph is best understood if it uses standard labeling and titling techniques. The guidelines are listed below.

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### Typical Graphing Layout:

1. A simple scatter graph with a line is used to show the relationship between independent and dependent variables.
2. The variable you control is called the independent variable. The independent variable is placed on the X-axis.
3. The other variable (usually the one you measure) is called the dependent variable because its change is dependent on the change in the independent variable. The dependent variable is placed on the Y-axis.

### Proper Engineering Graphs – The Rules:

1. Each axis must be properly labeled – include both quantity and units.
2. Each axis must be properly scaled. Break the axis where there is a discontinuity. Scale using regularly spaced increments.
3. Do not connect the plotted points with a series of straight lines. A best fit curve is the preferred method.
4. Do not waste axis space. Adjust the scale to show your data clearly.
5. Include a graph title: “Dependent Variable vs. Independent Variable.” You may include a brief descriptor.

**The Assignment:**

Make a column graph for the relationship of vehicle speed and stopping distance.

Speed (mph)	Stopping Distance (ft)
0	0
5	21
10	47
15	78
20	114
25	155
30	201
35	252
40	309
45	370
50	436
55	508
60	584
65	666
70	753
75	844
80	941