

## AME 21216 – Score Sheet

### A9 – Spring-Mass Oscillator

NDID#: \_\_\_\_\_

For more details on any of the items below, please refer to the lab handout.

Item and Description	Points Awarded	Possible Points
<b>Technical writing</b> – Using the correct format, address all questions from the lab handout in the paragraphs.		3
<b>A plot of acceleration (<math>\text{m/s}^2</math>) vs. time (s) for one of the data sets. (Show only two periods of oscillation.)</b>		4
<b>A plot of velocity (<math>\text{m/s}</math>) vs. time (s) computed from the previous acceleration data set. . (Show only two periods of oscillation.)</b>		4
<b>A plot of spectral density (amplitude vs. freq.) of the Y acceleration data computed using the FFT code on the A9 web page</b>		4
<b>A table containing the following parameters:</b> <ul style="list-style-type: none"><li>• The measured mass of the weight with electronics mounted <math>m</math> (kg).</li><li>• The measured spring constant <math>k</math> (N/m).</li><li>• The <i>theoretical</i> natural resonance frequency <math>f_n</math> (Hz).</li><li>• The natural resonance frequency <math>f_n</math> (Hz) measured using the stopwatch.</li><li>• The natural resonance frequency <math>f_n</math> (Hz) determined from the FFT plot.</li></ul>		5
<b>TOTAL</b>		20

NOTE: Although measured data is typically plotted as individual markers, transient signals (such as acceleration vs. time) should be plotted as a continuous line.