GROUP MEMBERS:

CE 8060 – STRUCTURAL DYNAMICS
Homework #2

Assigned: Thursday, August 21, 2014
Due: Tuesday, August 26, 2014

Homework must be done neatly in pencil, on 8 ½"x 11" paper, stapled together. Each step must be easily followed; diagrams are useful. State your assumptions. Staple the question sheet to the front of your homework.

Make Sure to Include The Cover Page!

Make Sure to Write Both Group Members' Names!

For this homework, you should first read Reading #1 (available on BB). After reading this chapter, you will learn that vibration motion of a point of a physical object in one of its natural modes resembles simple harmonic motion. Then, plot a simple harmonic motion using the below function in MATLAB:

$$x(t) = x_0 \sin(\omega_n t)$$

Plot the function from 0 to 8 seconds using three different time-steps: 0.5 seconds, 0.25 seconds and 0.05 seconds). Scale the vertical axis from -4 to 4. Assume:

$$x_0 = 4 \; and \; \omega_n = 5 * \text{pi}/2.$$

Comment on the ability of these three different time steps in accurately representing the amplitude, $x(t)$ as a function of time, t as well as the natural angular frequency, for each of the three cases.

Submit a mini-report, which consists of the MATLAB script, the aforementioned plot and a brief description of your observation.