Lab Report

Name of the Experiment :

Your Name :

Your ID # :

Name of the Lab Partner :

Date :

Instructor's comments:

Data tables:

Table 1. Static Determination of the Spring Constant, k

Mass added to the spring, m (kg)	Force, m×g (N)	Length after stretch, X (m)	Time for 10 Oscillations (sec)		Average Time Period (T_{av}) (sec)	Time Period^2 (T^2) (sec^2)
0.000			-	-	-	-
0.150			-	-	-	-
0.200			-	-	-	-
0.250						
0.300						
0.350						
0.400						
0.450						
0.500						

From graph-1, Slope $= \frac{dX}{dF} =$ m/N

Spring constant, $k =$ $slope^{-1}$ = N/m

Work done from the F-X graph, W = J

Elastic potential energy, U = J

Table 2. Calculation of Effective mass

Mass of spring by digital balance, M_s	**kg**
Effective mass of the spring (take x intercept from the T^2 vs m graph), m_e	**kg**
Mass of the spring, $M_{s,exp} = 3 \times m_e$	**Kg**
Percentage Error	

Results:

Questions:

1. To what extent does your graph agree with Hooke's Law?

2. According to your understanding what is the relation between the added mass and frequency of oscillations of the spring mass system?

3. Did the m against T^2 graph passes through the origin? If not, interpret the meaning of the intercept in horizontal axis.

4. From your understanding of the spring mass system, what would be the relation between kinetic energy and potential energy during the oscillations?

Discussion: